Chapter I: Policies and Process

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Computerized Prescriber Order Entry (CPOE) Policy

CRIS supports the Medical Executive Committee (MEC) Computerized Prescriber Order Entry (CPOE) compliance objectives and greater participation in CPOE. CRIS makes it easier for Prescribers and Affiliate Medical Staff to enter orders.

NOTE: Refer to **Medical Administrative Series Policy #M04-1 Medical Orders in the Clinical Center** for more information.

Prescribers and Affiliate Staff

Prescribers are defined as physicians, physician's assistants, nurse practitioners, nurse anesthetists, podiatrists, and dentists. A Prescriber can request a medical order.

Affiliate staff can request medical orders ONLY on behalf of a Prescriber. Affiliate staff can also request certain service requests within their own department.

CRIS Affiliate Medical Staff Listing

Acupuncturist	**Anesthesia Technician**
Clinical Health Technician, Nutrition	**Cytology Technologist**
Diagnostic Radiology Technologist	**Dental Hygienist**
EEG Technician	**EKG Technician**
EMG Technician	**Genetics Counselor**
Infection Control Consultant	**Laboratory Technologist**
Nuclear Medicine Technologist	**Nurse (RN)**
Nurse (includes LPN)	**Occupational Therapist**
Ophthalmic Technician	**PET Technologist**
Perfusionist	**Pharmacist**
Pharmacy Technician	**Phlebotomist**
Physical Therapist	**Physical Therapy Assistant**
Pulmonary Function Technologist	**Radiation Therapist**
Recreation Therapist	**Recreation Therapy Specialist**
Registered Dietician	**Respiratory Care Practitioner**
Social Worker	**Speech Language Pathologist**
Spiritual Minister/ Chaplain	**Surgical Technologist**
Transfusion Medicine Technologist	**Vocational Rehabilitation Technician**

Table 1.1: CRIS Affiliate Medical Staff Listing

NOTE: Refer to **Medical Administrative Series Policy #M90-5 Credentialing Health Practitioners at the Clinical Center** for more information.

For the purposes of CRIS, the following staff has the same rights as the Affiliate Medical Staff:

- Laboratory Technologist
- Cytology Technologist

Medical Orders and Service Requisitions

A medical order directs the execution of specific activities prescribed as part of a diagnostic, therapeutic, and/or research program. Medical orders can be authored for various categories of persons (i.e., patients, healthy volunteers, or donors) or research samples (e.g., tissue screenings). Additionally, orders can direct activity at various locations properly associated with the NIH and the Clinical Center.

- Only an authorized Prescriber may author a medical order because of the legal requirements for professional licensure, standards of accreditation and scope of approved practice.

A service requisition is exactly the same as a medical order except that it can be authored by an affiliate staff member. For example, transport of a patient by Messenger/Escort is classified as a service requisition because it does not need to be restricted for use by a Prescriber due to legal requirements for professional licensure, standards of accreditation and scope of approved practice.

- Service requisitions are used primarily to improve efficiency.
- From a systems functionality point of view, CRIS treats a service requisition exactly as it does a medical order.

Below is a sample list of common service requisitions for select areas.

Service Requisition Listing – Affiliate Medical Staff	
ADT	**Medical Records**
Intra-unit Bed Change	Electronic Information Retrieval
Transfer Order (Internal-Outpatient)	Information Release: Outside 3rd Party
Bioethics	Inpatient Chart Consolidation
Bioethics Consult	Non-Clinical Retrieve and Hold Record
Clinical Video/Photo	**Messenger Escort Service**
Clinical Photography	Patient Transport
Clinical Videography	**Nutrition**
DASS	Nutrition Consult: (Clinical)
Off Site Anesthesia Request	Nutrition Consult: (Research)
OR/Anesthesia Request	Oral Supplements
DTM	Paper Tray Service
Blood Pickup Service Request	Special Nutrition Requests
	Meal Delivery: Interrupt

Service Requisition Listing – Affiliate Medical Staff	
Pharmacy	**Social Work**
Med/IV Replacement	Assessment Consult- Social Work
Radiology (Imaging Sciences)	Counseling - Social Work
Digital Film Library Copy Request	Discharge Planning - Resources
DX Read Outside Film	Education - Social Work
NM Read Outside Scan	Language Interpreter - Social Work
NM Reanalyze Scan	Patient Resources - Social Work
PET Diagnostic: Read Outside Films	Social Work - Participation in Conference
	Spiritual Ministry
	Spiritual Ministry

Table 1.2: Service Requests Orderable by AMS

Service Requisition Listing – Restricted to Department Staff	
ADT	**Medical Records**
Protocol Special Exemption	Outpatient Administrative Expiration
Critical Care Medicine	**Office of Protocol Services**
ACT, Whole Blood, Arterial, CCMD	Protocol Special Exemption
ACT, Whole Blood, Venous, CCMD	Remove Patient from Protocol
Blood Gases, Arterial, CCMD	**Radiology**
Blood Gases, Venous, CCMD	NM Read Outside Scan
Cooximeter, Arterial, CCMD	PET Diagnostic: Read Outside Films
Cooximeter, Venous, CCMD	**Rehabilitation Medicine**
Glucose, Whole Blood, Arterial, CCMD	Art Therapy
Glucose, Whole Blood, Venous, CCMD	Human Movement Disorders Restricted
Lytes, Whole Blood, Arterial, CCMD	Massage Therapy
Lytes, Whole Blood, Venous, CCMD	Music Therapy
DASS	Occupational Therapy
Surgical Services Location Change - IP	Oral Motor Function - Restricted
Surgical Services Location Change - OP	Physiatry (Rehab Physician)
DTM	Physical Therapy
Research Human Cell/Tissue Processing Svc	Recreation Therapy
Epidemiology	Rehab Electro-Diagnostic Study
Isolation - Acid Fast Bacilli (AFB)	Modified Barium Swallow
Isolation - Cent Nerv Sys Precaut (CNS)	Speech Language Pathology
Isolation - Contact	Vocational Rehabilitation
Isolation - Respiratory	
Isolation - Special Respiratory	
Isolation - Strict	

Table 1.3: Restricted Service Requests

Visits

Purpose: The purpose of visits in CRIS is to associate orders, documentation, and results with specific patient (or specimen) activities or encounters at the Clinical Center. Time frames for the duration of a visit may be highly variable. Only one visit may be active at any given time for a patient. Once opened, a visit remains open until a subsequent visit is created, or until a patient no longer participating in any research protocol is deemed inactive or expires.
Types: There are seven visit types in CRIS:

- **Pre-NIH Registration**: This visit is used only in advance of a patient's first clinical encounter at NIH. It is closed at the time of initial registration, when the visit is changed to either inpatient or outpatient. "Pre-Admit" orders may be entered in this visit type in anticipation of a patient's first outpatient or inpatient encounter at NIH.
- **Inpatient**: This visit is used for every inpatient admission. It is closed at the time of discharge from the inpatient setting.
- **Outpatient**: This visit is used for patients who are seen as an outpatient. Every consecutive outpatient appointment or encounter, including the day hospital, is included in a single outpatient "visit" in CRIS. It is closed only when the patient is admitted, is deemed inactive, or expires.
- **Historical**: This is used only for back-loading historical MIS patient information.
- **Specimen**: This visit is used in very limited circumstances for tests on specimens that are not tied to specific Clinical Center patients.
- **OMS (Occupational Medicine Service)**: This visit is used only for patients (employees) seen by OMS. OMS records in CRIS will remain separate from those for employees who are also enrolled in clinical trials.
- **Expiration**: This visit is created when a patient enrolled in a protocol expires (whether at the Clinical Center or elsewhere). Autopsy orders may be entered during this "visit."

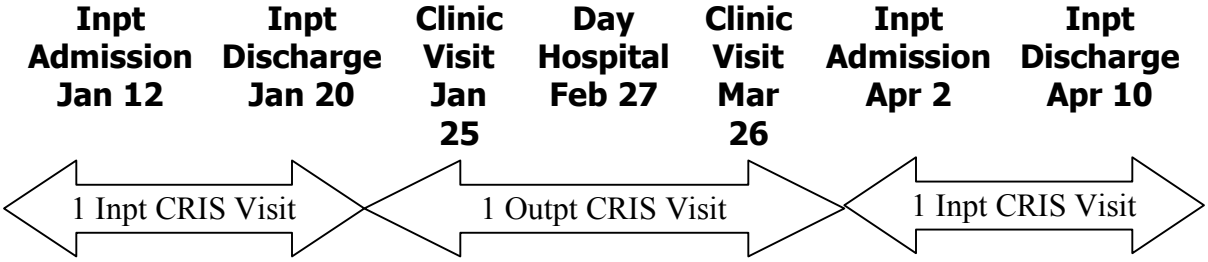


Figure 1.1: Inpatient and Outpatient Visits

Admission Discharge Transfer and Pass

The ADT group of processes includes the admission, discharge, internal and external transfer, and pass processes. These orders are sometimes referred to as 'enterprise orders'.

MIS will remain in place as the ADT system for CRIS Phase 1. All patient demographic information will be maintained in MIS, and will continue to be entered and updated only by Admissions staff. An interface between MIS and CRIS relays updated ADT information from either system to the other in real time. MIS also sends updated ADT information to the ancillary information systems, such as lab and radiology.

Policies for ADT and Pass remain essentially unchanged. Process changes described here are required because of changes in order management in CRIS.

The NIH Form 54 in MIS is now in the Admissions, Travel and Voucher (ATV) web-based system. This system is used to request different services, including admission, protocol entry, and travel arrangements. Staff will continue to request admission and protocol entry using the ATV system.

In CRIS, any protocol in which a patient is participating is listed in the Patient Info tab and the Summary tab under Health Issues. Patients are assigned to a primary protocol through the use of the ATV system. Patients may be assigned to secondary protocols using a signed consent form faxed to the Medical Records department. Medical Records department personnel can then enter this information (the protocol number) into the Health Issues in the patient record.

ADT Orders Details						
ADT Order	**Purpose**	**Order Type**	**Conditional ?**	**Activation**	**Management of Pt's Active Orders**	**Completion/ Closing of ADT Order**
Internal Transfer – Inpatient (*except OR*)	To move patients between different IP care units	Med Order entered by Prescriber	Yes, except to OR	RN manually activates order on worklist	All active orders manually suspended by RN on transferring unit	Marked as done on worklist by RN on sending unit upon transfer
Internal Transfer-Inpatient *(to OR)*	To move patient to the OR for a procedure	Med Order entered by Prescriber	No	Active at time of entry	All active orders manually suspended by RN	Marked as done on worklist by RN on transferring unit upon transfer
Internal Transfer-Inpatient *(from OR or PACU to ICU or new Patient Unit)*	To move patient who unexpectedly will not be returning from surgery to their originating unit	Med Order entered by Prescriber	If needed	Active at time of entry, unless conditional. RN manually activates cond. order on worklist	Post-op orders should be entered and/or unsuspended prior to transfer	Marked as done on worklist by RN in OR/PACU upon patient's transfer
Intra-Unit Bed Change	To check patient into a specific bed on a nursing unit assigned by Admissions or a transfer order	Service Requisition entered by RN on receiving unit	No	Active at time of entry	N/A	Auto-completes immediately

ADT Orders Details						
ADT Order	**Purpose**	**Order Type**	**Conditional ?**	**Activation**	**Management of Pt's Active Orders**	**Completion/ Closing of ADT Order**
Internal Transfer – Outpatient (*including OR*)	To move patients between different OP care settings	Service Requisition entered by RN	No	Active at time of entry	Order suspension not necessary unless ordered	Auto-completes immediately
External Transfer	To move patients to off-site facilities for further evaluation or care	Med Order entered by Prescriber	Yes	RN manually activates order on worklist when patient leaves CC	All active orders manually suspended by RN	Marked as done on worklist by RN on receiving unit when patient returns to CC
Surgical Services Location Change-IP or OP	To move patient within the OR area or from the OR to the originating unit or clinic	Service Requisition entered by RN	No	Active at time of entry	Post-op orders should be entered and/or unsuspended prior to transfer	Auto-completes immediately

ADT Orders Details						
ADT Order	**Purpose**	**Order Type**	**Conditional ?**	**Activation**	**Management of Pt's Active Orders**	**Completion/ Closing of ADT Order**
Discharge - Routine	To discharge a patient from an inpatient hospital stay	Med Order entered by Prescriber only	Yes	RN manually activates order on worklist	New orders for Take Home Medications entered if needed. All active inpatient orders except Take Home medications will auto-discontinue immediately when the visit changes.	Marked as done on worklist by RN on discharging unit upon discharge
Discharge – Expiration	To discharge a patient who has expired while at the CC	Med Order entered by Prescriber only	No	Active at time of entry	All active inpatient orders except Take Home medications will auto-discontinue immediately when the visit changes.	Marked as done on worklist by the RN
Discharge – AMA/ AWOL	To discharge a patient who has left AMA or is AWOL	Med Order entered by Prescriber only	No	Active at time of entry	All active inpatient orders except Take Home medications auto-discontinue immediately when the visit changes.	Marked as done on worklist by RN on discharging unit

ADT Orders Details						
ADT Order	**Purpose**	**Order Type**	**Conditional ?**	**Activation**	**Management of Pt's Active Orders**	**Completion/ Closing of ADT Order**
Outpatient Administra-tive Expiration	To discharge a patient who has expired outside the CC	Service Requisition entered by Medical Records	No	Active at time of entry	All active orders except Take Home medications auto-discontinue immediately when the visit changes.	Auto-completes immediately
Pass	To allow inpatients to leave the CC for a set period of time	Med Order entered by Prescriber	Yes	RN manually activates order on worklist when patient leaves CC	Prescriber designates orders to un-suspend upon patient's return All active orders are suspended by RN when patient leaves on pass Orders are unsuspended by prescriber or RN when pt returns to CC - New orders for Take Home Meds are entered if needed	Marked as done on worklist by RN on receiving unit when patient returns to CC

Table 1.4: ADT Orders Table

Administrative Transfers

Inpatients are sometimes transferred to other inpatient units for administrative rather than clinical reasons. An example of this is when census is low in the Clinical Center, as may occur over a holiday weekend, and patient locations are consolidated to ensure quality care. The movement of patients in these circumstances does not necessitate a medical order from the prescriber.

In MIS, nurses were able to change the patient location without notifying Admissions. In CRIS, in the absence of a medical order, the Admissions personnel must perform the transfer in MIS to achieve the move in CRIS. This is accomplished through verbal and written communication between the nursing units and Admissions. The process is followed again when patients are transferred back to their units of origin.

Process flow – Administrative Transfer

1. The unit charge nurse prints a patient list or census from CRIS which includes all patients on the unit who are being transferred.
2. The charge nurse indicates in writing on the list to which unit these patients will go.
3. The charge nurse phones Admissions to alert the staff that the requested changes are being sent.
4. The list is sent to Admissions via the tube system.
5. Admissions personnel make the patient location changes in MIS.
6. Nurses move the patients to the new location.
7. Admissions will phone the accepting unit to confirm that the location change has been completed in MIS.
8. Nurses assign the patients to beds in the new unit in CRIS using an intra-unit bed change service request.

Admission

The admission process is initiated for any inpatient admission or first-time outpatient visit once the institute has prescreened a patient for protocol entry. An electronic form known as the Admissions, Travel, and Voucher (ATV) form is used to initiate the process and is accessed on the web at http://atv.cc.nih.gov.

The CRIS admission process is very similar to the prior MIS process. ADT information continues to be stored and maintained in MIS. Admissions personnel enter and update patient information into MIS. This patient registration information crosses a real-time bidirectional interface from MIS to CRIS. Once the initial information has crossed from MIS to CRIS, Prescribers can enter orders on a patient in CRIS. All patient orders are entered in CRIS.

The protocol number is included in the ATV form and entered into MIS by the Admissions staff. The protocol number crosses from MIS to CRIS with the patient's demographic information. Patients are assigned to a primary protocol through the use of the ATV form. Patients may be assigned to secondary protocols using a signed consent form faxed to the Medical Records department. Medical Records department personnel can then enter this information (the protocol number) into the Health Issues in the patient record in CRIS.

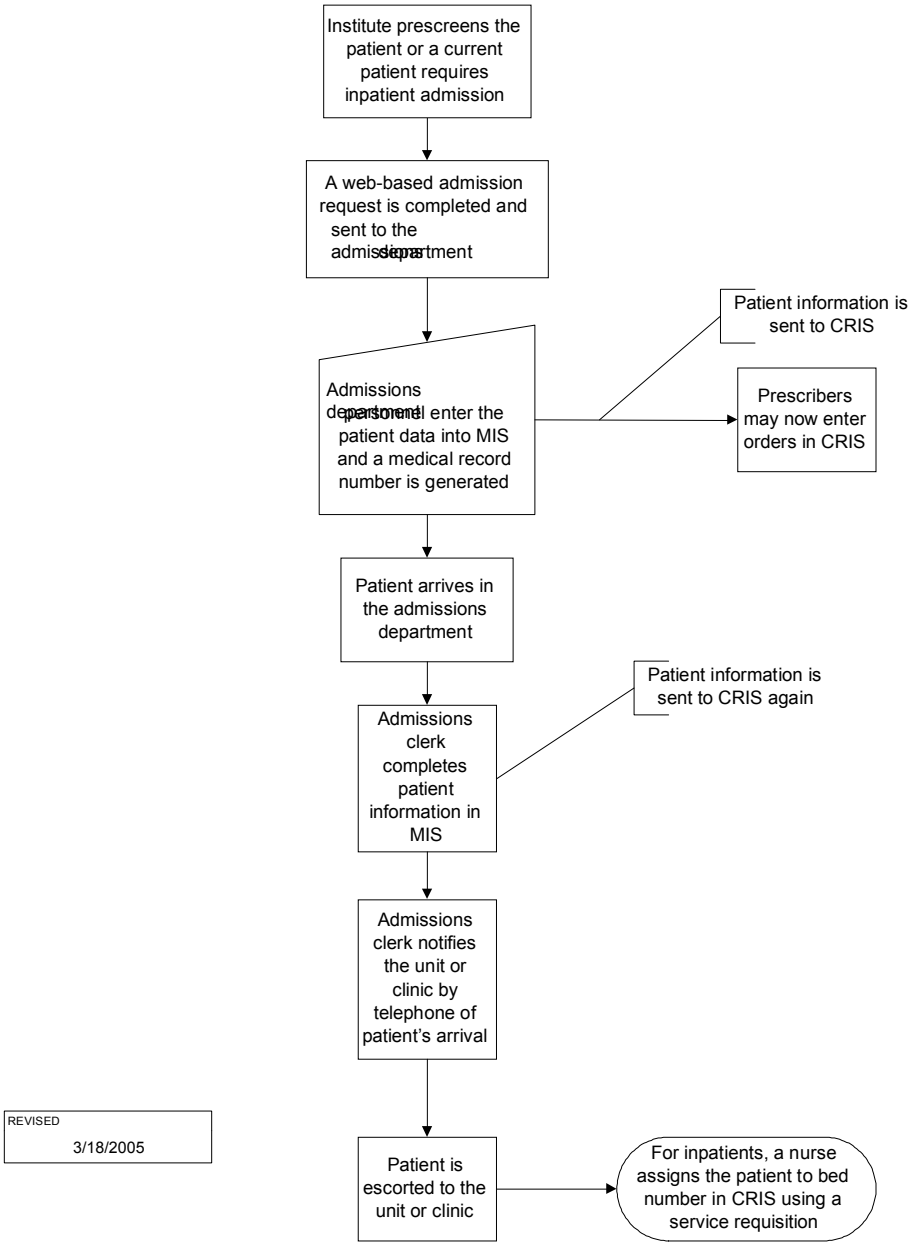
The final step in the inpatient admission process is the assignment of a patient to a bed. Upon the patient's arrival to the inpatient unit, the nurse completes the bed assignment in CRIS, using an intra-unit bed change service requisition.

CRIS Process Flow - Admission

1. A new patient is registering with the NIH after the institute prescreening or a current NIH patient requires inpatient admission.
2. The Prescriber or an authorized affiliate medical staff as an "agent for" the Prescriber completes a web-based request for admission (ATV) which prints in Admissions.
3. The Admissions clerk enters the patient data (including protocol number) into MIS and a medical record number is generated for new patients, or retrieved for existing patients.
   - Patient information is sent to CRIS.
4. The Prescriber or an "agent for" may now enter orders into the patient record in CRIS. Orders entered prior to a patient's arrival are entered as Future Outpt/Pre-admit session-type orders.
5. The patient arrives in Admissions.

6. An Admissions clerk completes patient information in the MIS, including assigning the patient to a unit or clinic as indicated on the admission request form.
   - Updated patient information is again sent to CRIS again.
7. The unit or outpatient clinic is notified of the patient's arrival by telephone.
8. The patient is escorted to the unit or outpatient clinic.
9. For inpatients, a nurse assigns the patient to a bed number in CRIS by entering an intra-unit bed change service requisition.

CRIS Process Flow - Admission



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Discharge

Patients in the NIH setting are not discharged from the CRIS system. The term 'discharge' reflects a change in the patient status from inpatient to outpatient. Discharge from the Clinical Center information system only occurs after the expiration of a patient.

Patients are discharged from the Clinical Center once their physician enters a discharge order and any pre-discharge orders and activities, such as teaching or the preparation of take-home medications, are carried out. Nurses may not enter a discharge order as an "agent for" the Prescriber under any circumstances.

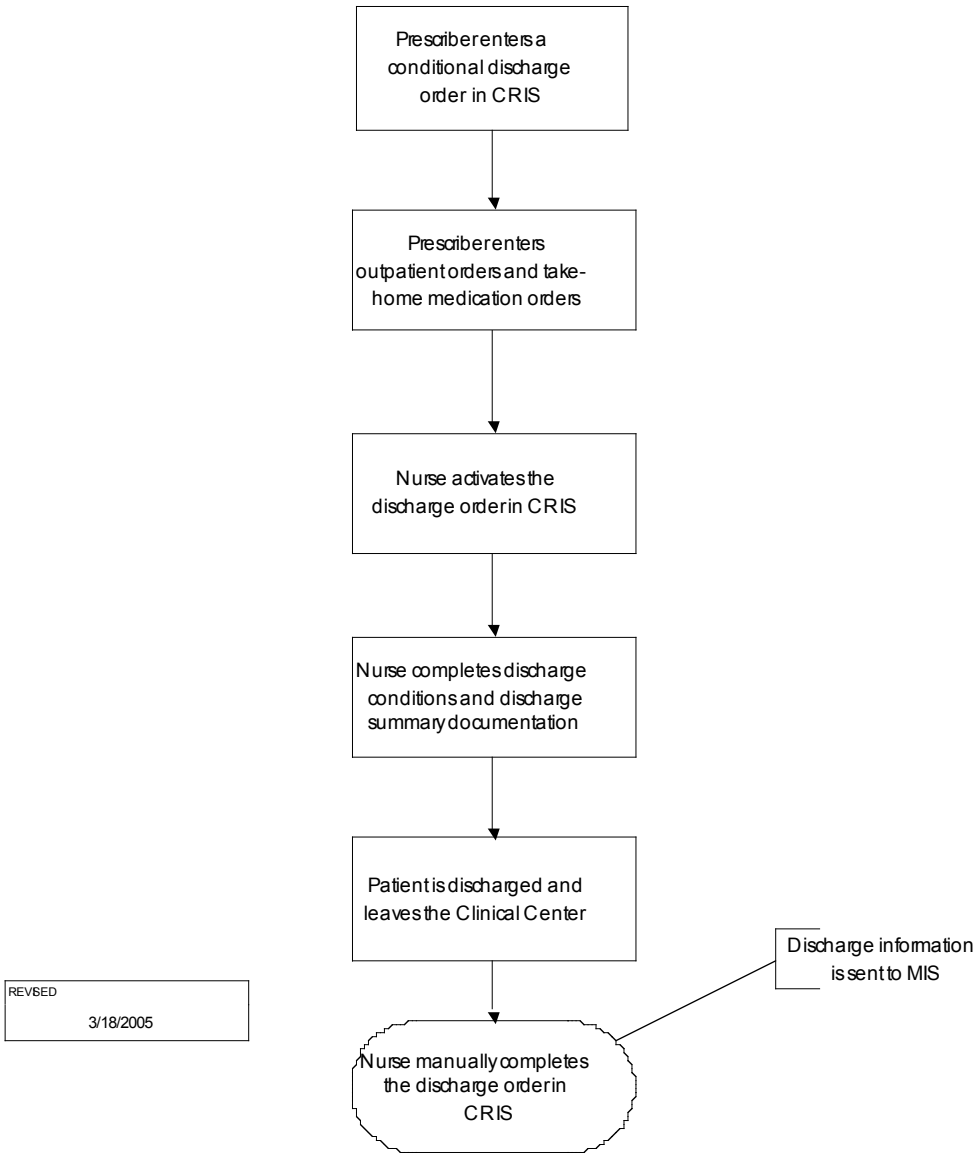
A discharge order is entered as a conditional order. The conditions are specified in a free text dialog box when the order is entered. When the nurse is ready to proceed with the discharge activities, s/he activates the order in CRIS. When the conditions are met and the patient is leaving, the nurse completes the discharge documentation and manually completes the discharge order in the worklist. Completing a discharge order in CRIS causes the information that a patient is discharged to cross the interface back to MIS, the ADT system.

Admissions personnel do not have to take any manual action in MIS. The inpatient visit closes immediately, and a new outpatient visit is established. Active inpatient orders remain active in the patient record with the exception of orders that generate tasks (i.e. medication orders, ADT medical orders and repeat orders) which auto-discontinue immediately.

CRIS Process Flow - Discharge

1. The prescriber enters a discharge-routine order in CRIS as a conditional order.
2. The prescriber stipulates the conditions as free text in the conditions dialog box. Conditions may include specific teaching, arrival and explanation of take-home medications, etc.
3. The prescriber enters future outpatient orders as 'Future Outpt/Pre-admit' session-type orders and take-home medications as 'Take Home Medications' session-type orders.
4. The nurse activates the discharge order in CRIS.
5. The nurse makes sure the discharge conditions are fulfilled and completes the discharge summary documentation.
6. The patient is discharged from the Clinical Center.
7. The nurse manually completes the discharge order in CRIS.
   - Patient status change from inpatient to outpatient is sent to MIS.

CRIS Process Flow - Discharge-Routine



Internal Transfer (Unit to Unit)

An internal transfer, a transfer from one unit to another, may be initiated for administrative or clinical reasons. Any internal transfer from one unit to another for clinical reasons requires a medical order. A prescriber must enter the transfer order. A nurse may enter the order as an "agent for" the prescriber in an urgent or emergent situation.

In CRIS, transfer orders are entered as conditional orders. The transferring nurse suspends all active orders. The accepting prescriber decides which orders to unsuspend or discontinue, and enters new orders as needed.

The transferring nurse manually activates and completes the transfer orders. Information regarding the patient transfer crosses the interface to MIS for ADT purposes upon the manual completion of the transfer order.

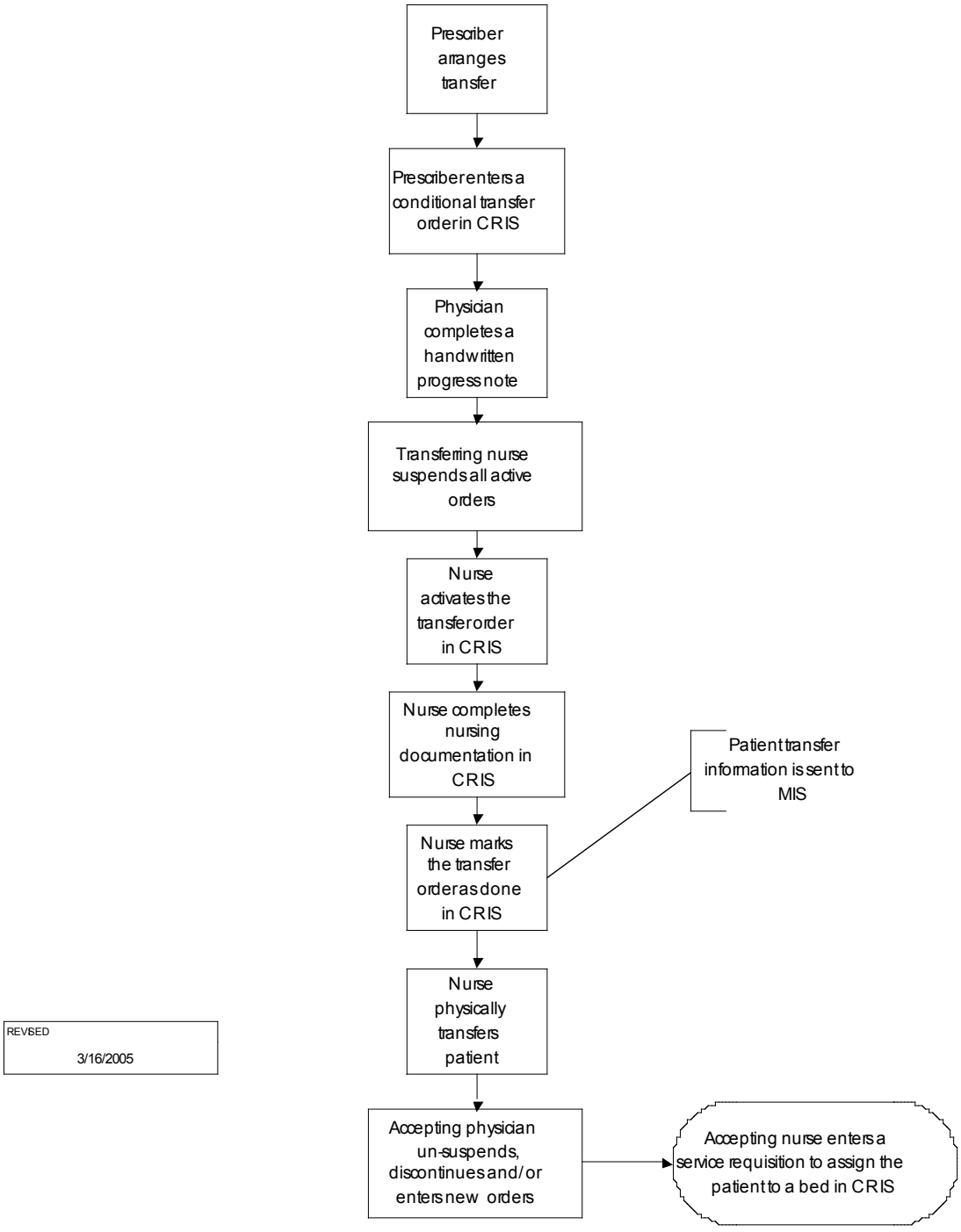
Transfers for administrative reasons do not require a medical order and are manually carried in MIS by Admissions personnel. Please see Administrative Transfers in this chapter for process information.

CRIS Process Flow – Internal Transfer

Transfers from one unit to another for clinical reasons require a medical order. Patient movement from one bed to another within a unit will be done by nursing using a service requisition.

1. The transferring prescriber arranges the transfer through communication with the accepting physician.
2. Prescriber enters a conditional transfer (internal) order, indicating the accepting unit.
3. The transferring prescriber completes a handwritten progress note to accompany the patient and chart.
4. The transferring nurse suspends all active orders.
5. The transferring nurse activates the transfer order on the worklist in CRIS.
6. The transferring nurse completes any nursing documentation in CRIS.
7. The transferring nurse marks the transfer order as done on the worklist in CRIS.
   - Patient transfer information is automatically sent to MIS for ADT purposes.
8. The transferring nurse physically transfers the patient and chart to the new unit.
9. The accepting physician addresses orders.
   - The accepting physician unsuspends, discontinues, and/or enters new orders.
10. The accepting nurse assigns the patient to a bed number using an intra-unit bed change service requisition in CRIS.

CRIS Process Flow - Transfer-Internal



OR/PACU Transfers

The process in CRIS for transferring a patient to, through, and out of the OR/PACU is similar to other transfers with some variances. Prescribers should first always complete an OR/Anesthesia request in CRIS. The purpose of the OR/Anesthesia request is for planning purposes and it does not by itself generate or replace any orders, including transfer orders. The prescriber then separately enters any anticipated radiology, blood, and other pre-op orders into CRIS.

Inpatient transfer to the OR/PACU requires a medical order (Transfer Order [Internal-Inpatient]), although this order need not be conditional. Outpatient transfer to the OR/PACU is accomplished through a service requisition (Transfer Order [Internal-Outpatient]) entered by either the outpatient clinic nurse or OR/PACU nurse, depending on where the patient arrives on the day of surgery.

Nurses in the OR/PACU can move a patient within the OR/PACU area, back to the patient's unit or clinic of origin, or to the ICU if preplanned using a restricted service requisition (Surgical Services Location Change) in CRIS. Transfer of a patient to a unit other than the sending unit or an unanticipated transfer to the ICU requires a medical order (Transfer Order [Internal-Inpatient]).

Outpatients who need to be admitted following surgery must have an ATV form submitted to Admissions. Only Admissions can move an outpatient to an inpatient unit; this can't be accomplished properly with a transfer order.

Process points to note

- The OR/PACU area has 3 locations: OR-1, OR-2, and PACU.
- Inpatient transfer to the OR/PACU requires a medical order (Transfer Order [Internal-Inpatient]). Unlike most transfer orders in CRIS, this is not a conditional order.
- Outpatient transfer to the OR/PACU is completed by a service requisition (Transfer Order [Internal-Outpatient]) entered by either the outpatient clinic nurse or the OR/PACU nurse, depending on where the patient arrives on the day of surgery.
- Nurses move patients within the OR/PACU area in CRIS using a restricted service requisition (Surgical Services Location Change), beginning when the patient arrives to the OR/PACU.
- Transfer of an inpatient after surgery to a unit other than the original inpatient unit requires a medical order (Transfer Order [Internal-Inpatient]), unless it is a preplanned transfer to the ICU.

CRIS process flow – Inpatient surgery

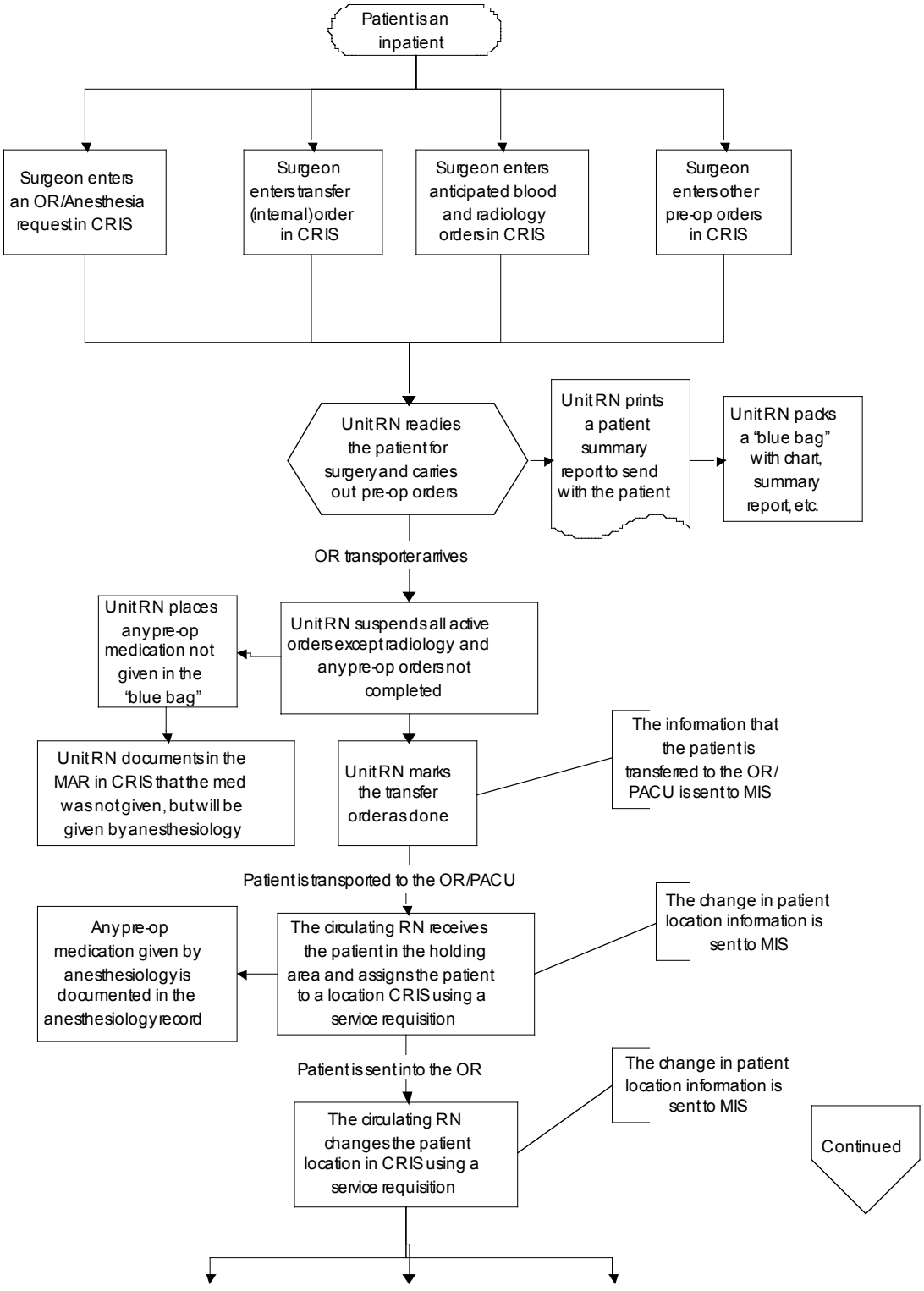
1. The patient is located on an inpatient unit.
2. The surgeon enters an OR/Anesthesia request in CRIS.
    - The surgeon enters a transfer (internal) order (not conditional).
    - The surgeon enters anticipated blood, radiology, and any other pre-op orders in CRIS. Order requisitions are printed in both the inpatient unit and the relevant department.
3. The unit nurse prepares the patient for surgery and carries out the pre-op orders.
    - The unit nurse packs a "blue bag" to accompany the patient that contains the chart, a patient summary printed from CRIS, and any pre-op meds not given.
4. When the OR transporter arrives, the unit nurse suspends all active orders except any pre-op orders not completed.
    - Any meds not given on the unit are included in the "blue bag". The nurse will document this medication as not given on the MAR in CRIS, noting that the medication was sent to the OR to be given there. Anesthesiology will give the medication, recording it in their documentation.
5. The unit nurse marks the transfer order as done on the worklist in CRIS and sends the patient to surgery.
    - The patient location change is sent to the ADT system and then updated in CRIS.
6. The circulating nurse receives the patient and assigns the patient to an OR location (i.e., OR-1, OR-2, or PACU) in CRIS using a service requisition (Surgical Services Location Change [IP]).
7. When the patient is sent into the OR suite, the circulating nurse changes the patient location in CRIS to an appropriate OR location, using a service requisition (Surgical Services Location Change [IP]).
8. Any unanticipated orders that occur during surgery are entered into CRIS (by the circulating nurse or anesthesia tech). Radiology and blood bank orders are also phoned into the performing department.
9. After surgery, the surgeon unsuspends and/or discontinues previous orders and enters new orders, including patient destination if not the patient's originating unit.
    - To the ICU (unanticipated) or inpatient unit other than the unit before surgery: The surgeon enters a transfer (internal) order.
        i. The circulating nurse activates the order, if it is entered as conditional.
        ii. The circulating nurse marks the order as done on the worklist.
    - To the PACU: The circulating nurse changes the patient location in CRIS to the PACU, using a service requisition.

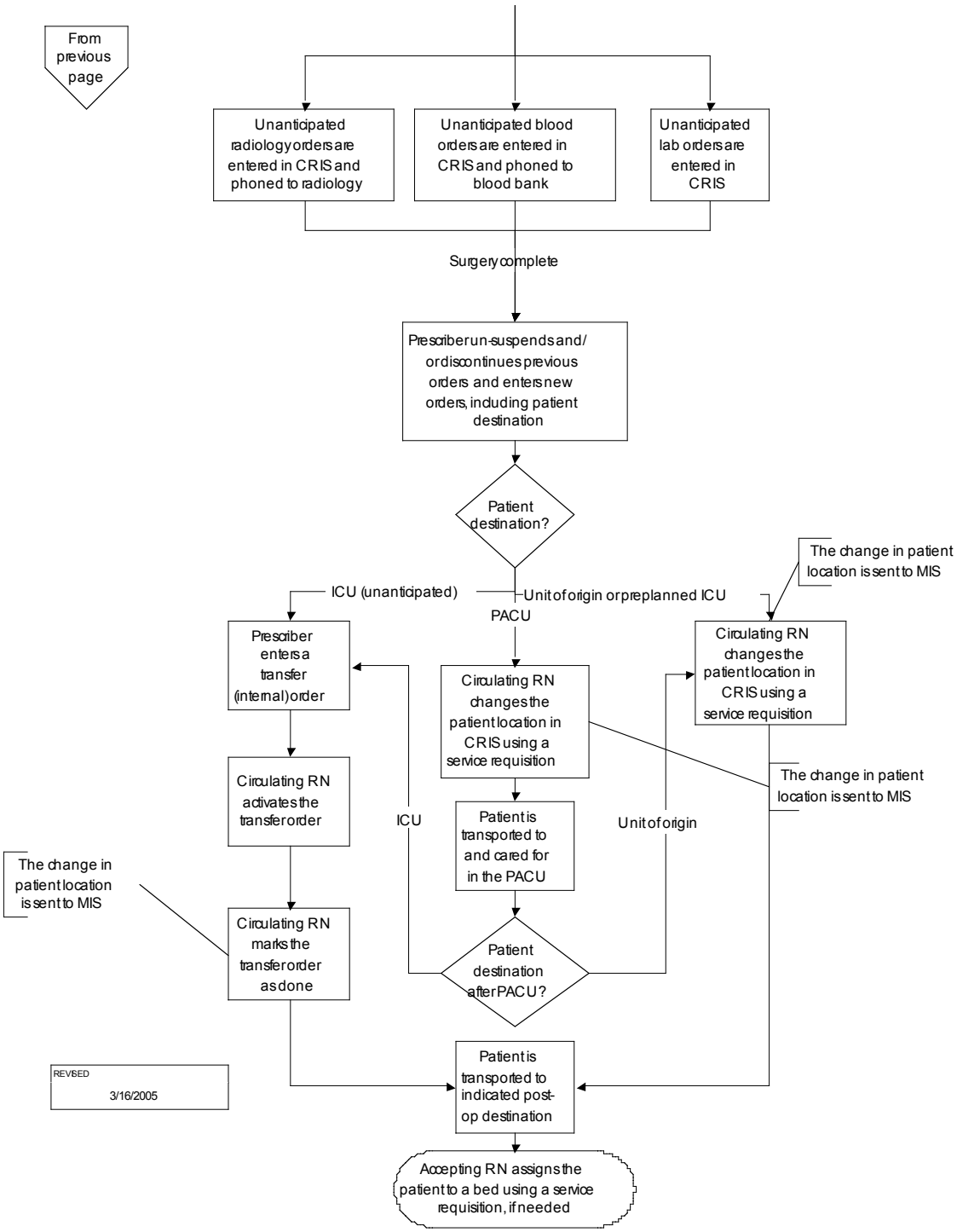
i. If patient disposition after PACU is to the ICU, the above steps to transfer to the ICU are followed.

- To the original inpatient unit: The circulating nurse changes the patient location in CRIS to the original inpatient unit, using a service requisition.

10. Patient is transported to the indicated post-op location.
11. The accepting nurse assigns the patient to a bed in CRIS, if needed, using an intra-unit bed change service requisition.

CRIS Process Flow - Inpatient Surgery




From previous page
Unanticipated radiology orders are entered in CRIS and phoned to radiology
Unanticipated blood orders are entered in CRIS and phoned to blood bank
Unanticipated lab orders are entered in CRIS
Surgery complete
Prescriber un-suspends and/or discontinues previous orders and enters new orders, including patient destination
Patient destination?
ICU (unanticipated)
Unit of origin or preplanned ICU
PACU
The change in patient location is sent to MIS
Prescriber enters a transfer (internal) order
Circulating RN changes the patient location in CRIS using a service requisition
Circulating RN changes the patient location in CRIS using a service requisition
Circulating RN activates the transfer order
The change in patient location is sent to MIS
ICU
Patient is transported to and cared for in the PACU
Unit of origin
The change in patient location is sent to MIS
Circulating RN marks the transfer order as done
Patient destination after PACU?
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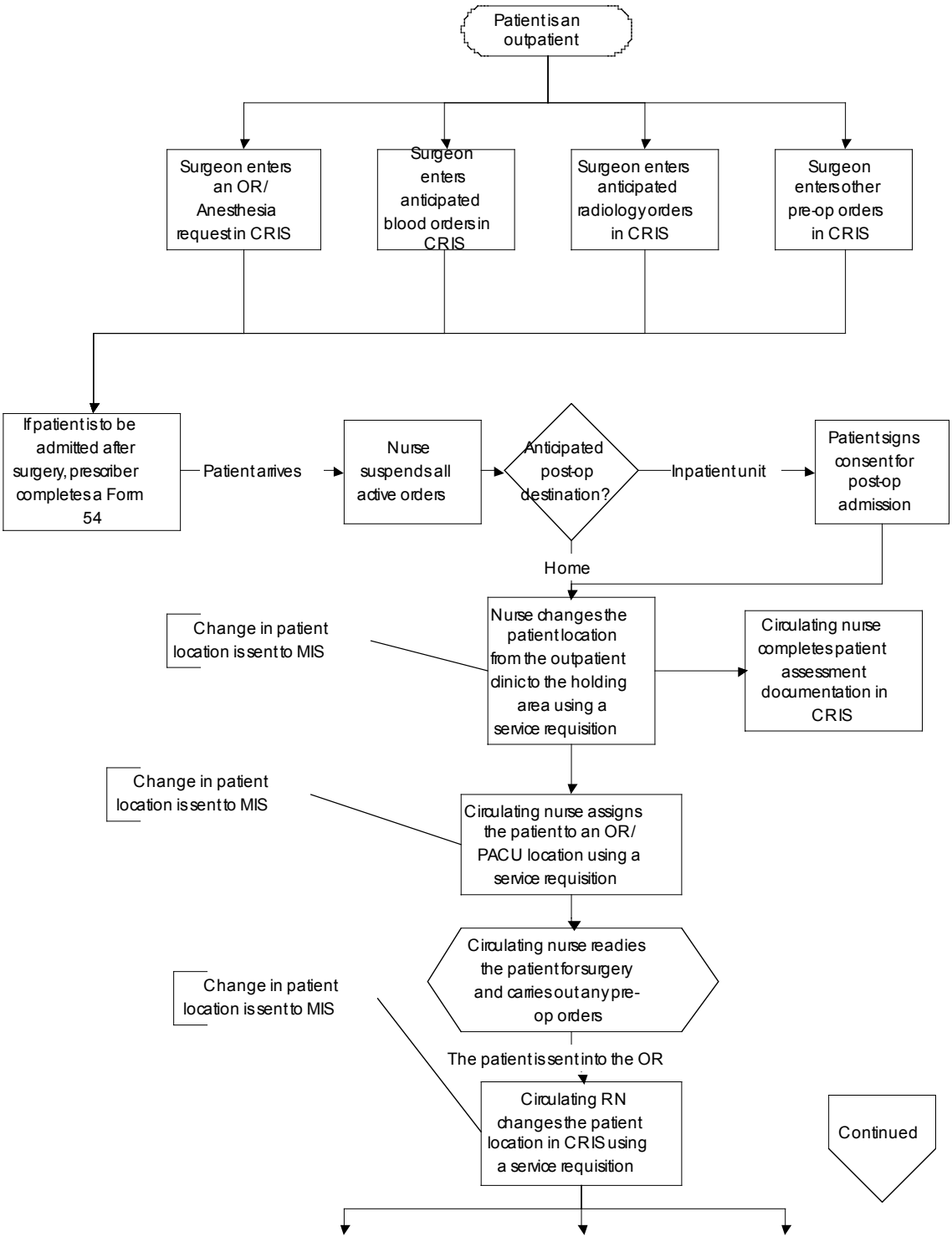
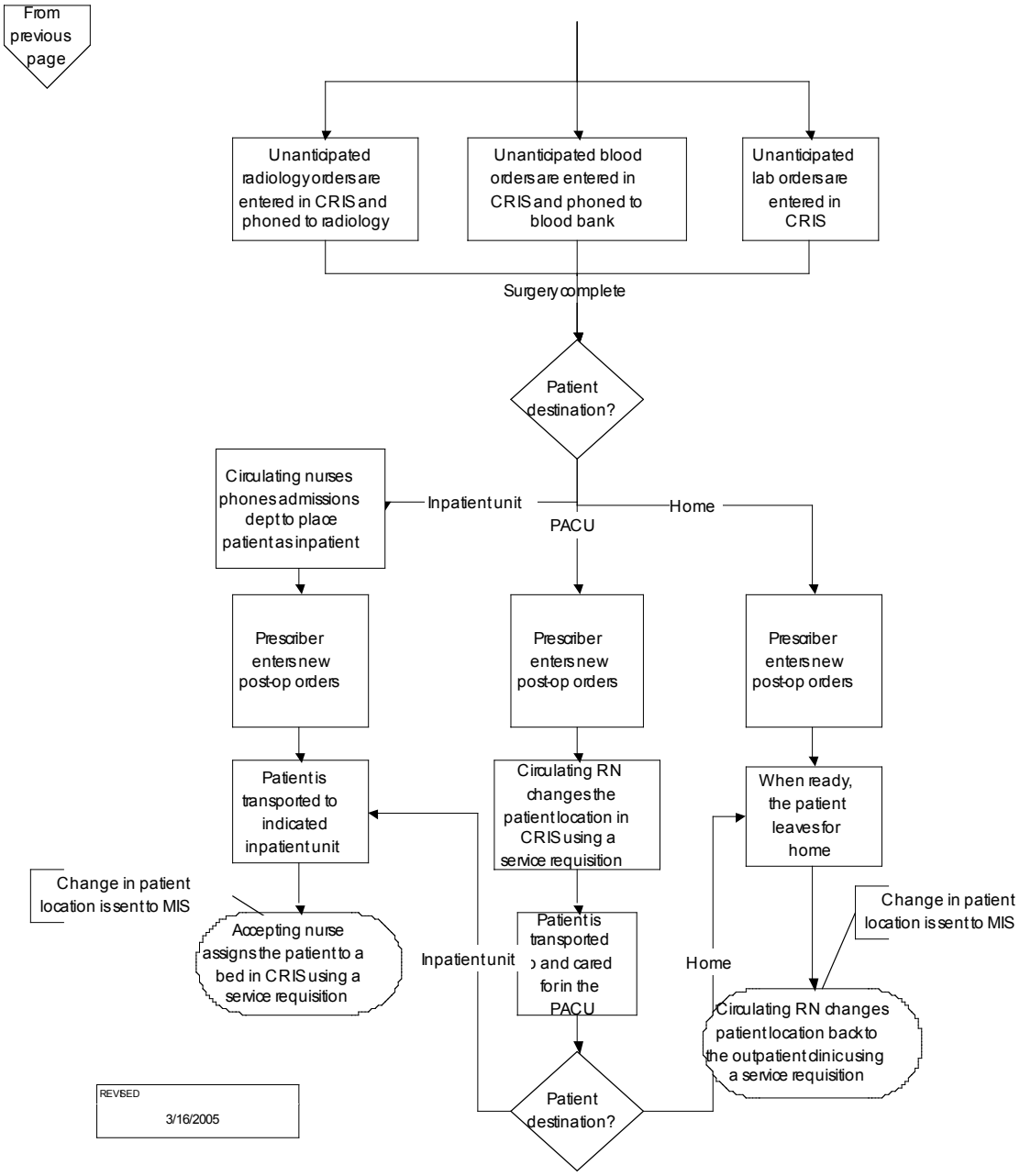
Patient is transported to indicated post-op destination
Accepting RN assigns the patient to a bed using a service requisition, if needed

CRIS Process Flow – Outpatient Surgery

1. The patient is an outpatient assigned to an outpatient clinic.
2. The surgeon enters the OR/Anesthesia request in CRIS.
    - The surgeon enters anticipated blood and radiology orders and any other pre-op orders in CRIS. Order requisitions are printed in both the clinic and the related department.
    - If the patient is to be admitted to an inpatient unit after surgery, the prescriber completes an ATV form requesting admission.
3. Patient arrives at the OR or outpatient clinic.
4. The nurse suspends all active orders except any pre-op orders not completed.
5. If the patient is to be admitted after surgery, the patient signs a consent form for admission.
6. The circulating nurse changes the patient location in CRIS from the outpatient clinic to the OR/PACU area using a service requisition (Surgical Services Location Change [OP]).
7. The circulating nurse assigns the patient to a location within the OR/PACU area (OR-1, OR-2, or PACU) using a service requisition (Surgical Services Location Change [OP]).
8. The circulating nurse completes a patient assessment and documents in CRIS.
9. The circulating nurse readies the patient for surgery by carrying out pre-op orders.
10. Any unanticipated orders that occur during surgery are entered into CRIS (by the circulating nurse or anesthesia tech). Radiology and blood bank orders are also phoned to the respective department.
11. After surgery, the surgeon enters post-op orders*.
    a. *If the patient is to go to an inpatient unit: Orders for the inpatient unit are entered as Future Outpt/Pre-Admit session-type orders. The circulating nurse phones the admissions department to communicate that the patient is going to the inpatient unit. Only Admissions can assign an outpatient to an inpatient unit; a transfer order will not accomplish this properly. The patient is transported to an inpatient unit.
    b. To the PACU: The circulating nurse changes the patient location in CRIS to the PACU, using a service requisition (Surgical Services Location Change [OP]).
        i. Patient destination after PACU follows 11a above for transfer to an inpatient unit or 11c below for discharge to home.
    c. To home: The patient is sent home when ready. The circulating nurse sends the patient back to the outpatient clinic in CRIS using a service requisition (Surgical Services Location Change [OP]).
12. For patients transferred to an inpatient unit, the accepting nurse assigns the patient to a bed in CRIS using an intra-unit bed change service requisition.

CRIS Process Flow - Outpatient Surgery





External Transfer

An external transfer occurs whenever a patient is sent from the Clinical Center elsewhere off campus for care. This may be to another hospital for a procedure or to a physician's office. By policy, an external transfer may only last for 17

days at most. If a patient has not returned within 17 days, the prescriber must discharge the patient. There is no automatic notification in CRIS to prescribers of patients away from the Clinical Center for more than 17 days.

External transfers are entered as conditional orders and may be entered by prescribers only. The nurse activates and manually completes the external transfer order on the worklist in CRIS. Information that the patient has been externally transferred crosses the interface to MIS for ADT purposes when the transfer order is activated. Information that the patient has returned from an external transfer crosses the interface to MIS when the order is marked as done.

The nurse manually suspends all active orders when the patient leaves the Clinical Center. The prescriber reviews and unsuspends, discontinues, and/or enters new orders when the patient returns.

The external transfer order form contains a field to indicate whether the patient will be away from the Clinical Center for more than or less than 24 hours. Patients leaving for less than 24 hours may have medical records and/or the chart accompany them. To order medical records for a patient, the prescriber enters a service requisition in CRIS.

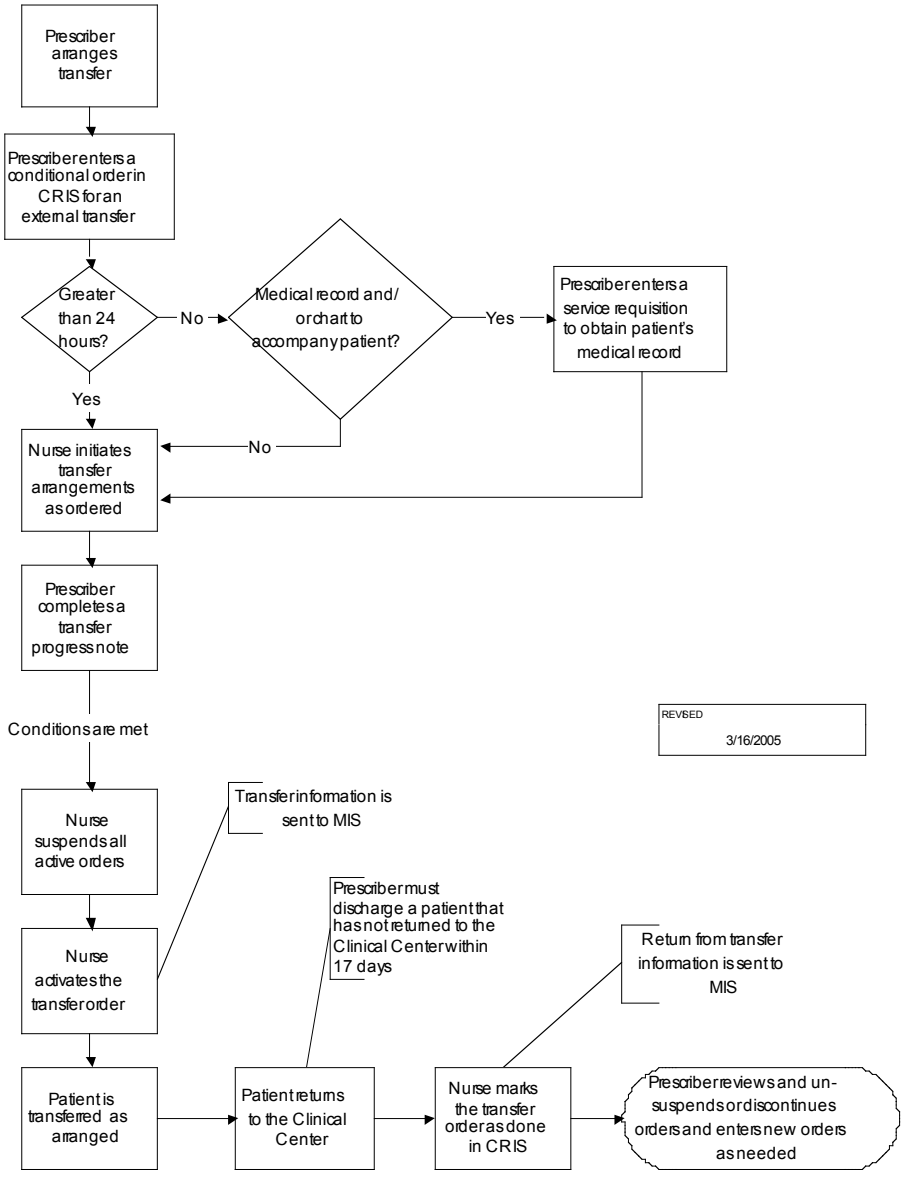
CRIS Process Flow – Transfer- External

1. The prescriber arranges transfer to an outside facility through communication with the facility.
2. The prescriber enters a transfer (external) order as a conditional order in CRIS.
3. The prescriber indicates on the order form whether the visit will be greater than or less than 24 hours. If it is less than 24 hours, the prescriber can choose whether or not to allow the medical record and/or chart to accompany the patient.
    - If the medical record is to accompany the patient, the prescriber completes a medical records service requisition.
4. The nurse initiates transfer arrangements as ordered.
5. The prescriber completes a transfer progress note.
6. When the transfer conditions are met, the nurse suspends all active orders.
7. The nurse activates the conditional transfer order on the worklist in CRIS.
    - When the order is activated, the information that the patient has been transferred is sent to MIS for ADT purposes.
8. The patient is transferred to an outside facility as arranged.
    - The prescriber must discharge a patient who has not returned to the Clinical Center within 17 days.
9. The patient returns to the Clinical Center.
10. The nurse marks the transfer order as done on the worklist in CRIS.

- When the order is completed, the information that the patient has returned to the Clinical Center is sent to MIS.

11. The prescriber reviews and unsuspends or discontinues orders as appropriate and enters new orders as needed.
    - The nurse may unsuspend orders as an "agent for" the prescriber when a verbal order is given.

CRIS Process Flow - Transfer-External



Pass

A pass is ordered to allow a patient to temporarily leave the Clinical Center. By policy, a pass may only last for 17 days at most. If a patient has not returned within 17 days, the prescriber must discharge the patient. There is no automatic notification in CRIS of patients away from the Clinical Center for more than 17 days.

The pass order is entered as a conditional order. It may be entered for a single occurrence on a specific date or for multiple occurrences. The nurse activates and marks the pass order as done on the worklist. Information that the patient has left on pass crosses the interface to MIS for ADT purposes when the pass order is activated. Information that the patient has returned from pass crosses the interface to MIS when the order is marked as done.

The only patient care order that is suspended automatically when the pass order is activated is the diet order. The nurse manually suspends all other active orders. The prescriber indicates in the pass order which orders the nurse is to unsuspend when the patient returns.

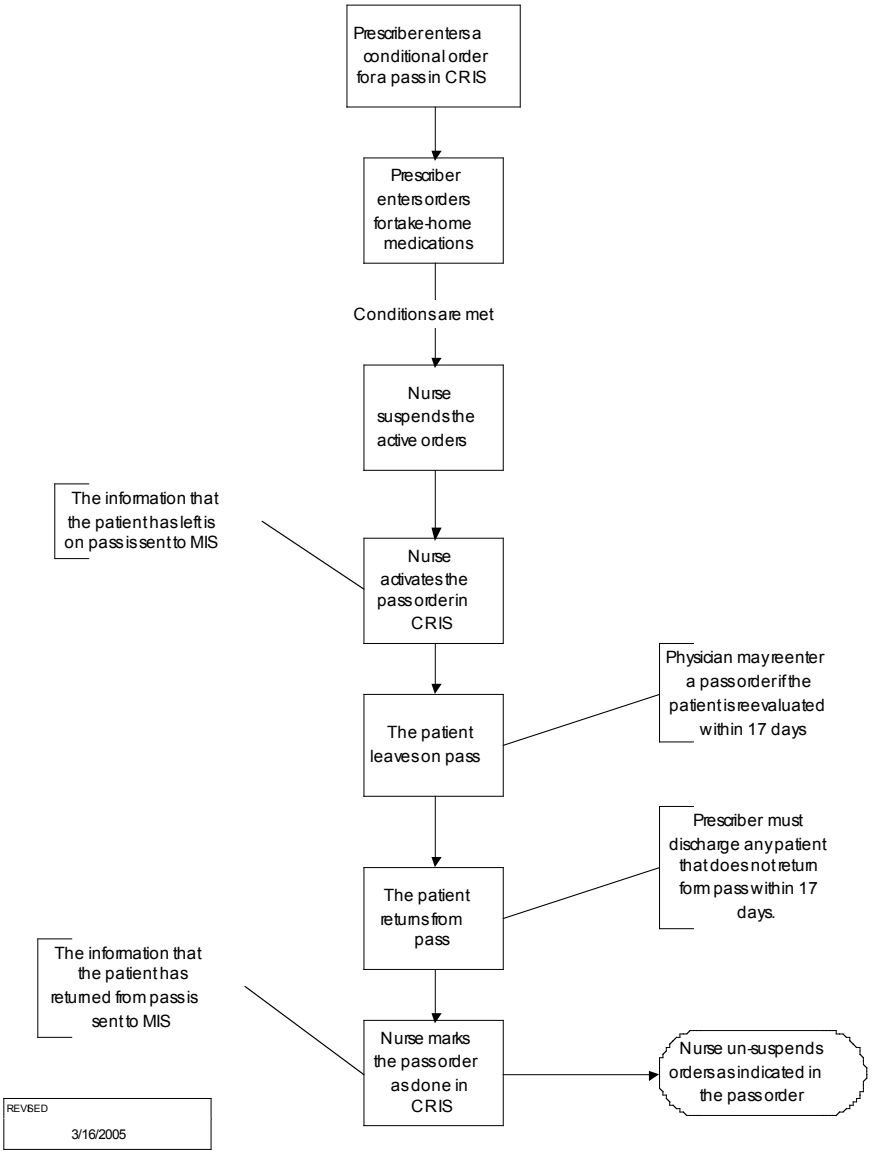
CRIS Process Flow - Pass

1. The prescriber enters an order for a pass in CRIS.
   - Entered as a conditional order, defining the conditions; for example, pending the results of labs.
   - The prescriber enters in special instructions which orders to unsuspend when patient returns.
   - May be entered for a specific number of activations or a single date and time.
2. The prescriber enters any necessary new orders for take-home medications as a 'Take Home Medication' session-type order.
3. When the pass conditions are met, the nurse suspends all active orders.
4. The nurse activates the conditional pass order on the worklist in CRIS.
   - The information that the patient is on pass is sent to MIS for ADT purposes.
5. The patient leaves on pass.
   - The prescriber may extend the pass if a patient is reevaluated and a new pass order is entered before the 17th day of the current pass.
6. The patient returns from pass.
   - The prescriber must discharge any patient that has not returned from pass within 17 days.
7. The nurse marks the pass order as done on the worklist in CRIS.

- The information that the patient has returned from pass is sent to MIS.

8. The nurse unsuspends orders as indicated by the prescriber in the pass order.
   - The nurse may unsuspend orders as an "agent for" the prescriber when a verbal order is given.

CRIS Process Flow - Pass



Temporary Patient Locations

Inpatients and outpatients at the Clinical Center are frequently moved to various diagnostic and procedural areas of the hospital during the course of their care.

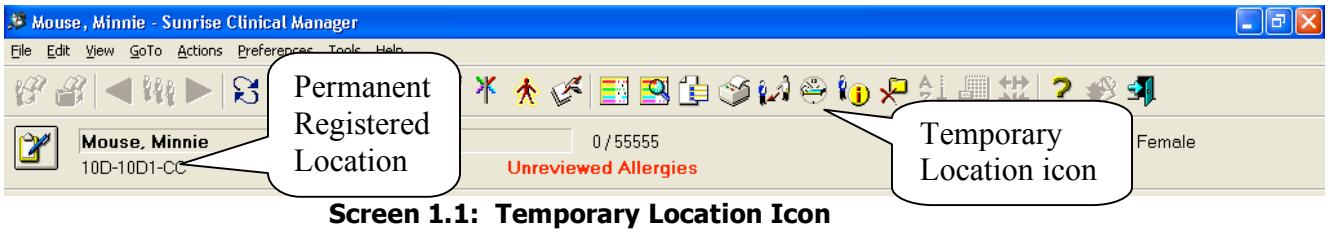
For patient location and communication purposes, it is important to identify where the patient is located. CRIS displays the registered patient location in the header area at the top of each screen; this location is where CRIS will print order requisitions, test results, and labels by default.

Some patient care locations are not areas where a patient is routinely registered (e.g., hemodialysis). However, providers in those areas need to enter and receive printed orders and results in CRIS, because that is where the care is being delivered. To accommodate this notification need, CRIS provides a temporary location function accessible on the main patient screen.

To put a patient in a temporary location

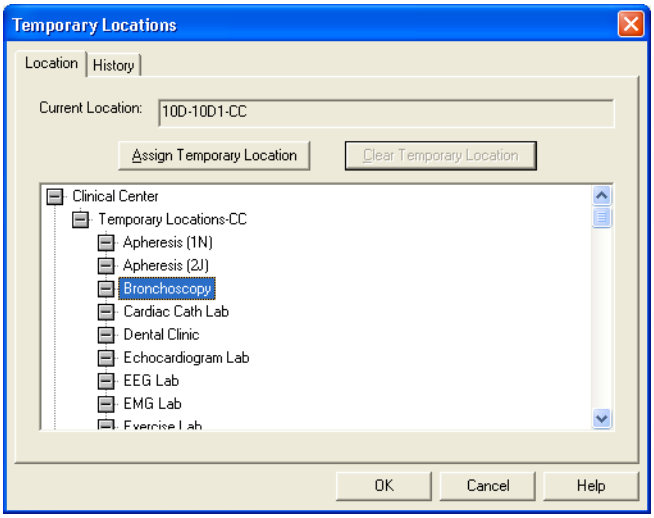
When a patient arrives in a temporary location, the staff in that area:

1. Click on the Temporary Location icon.



Screen 1.1: Temporary Location Icon

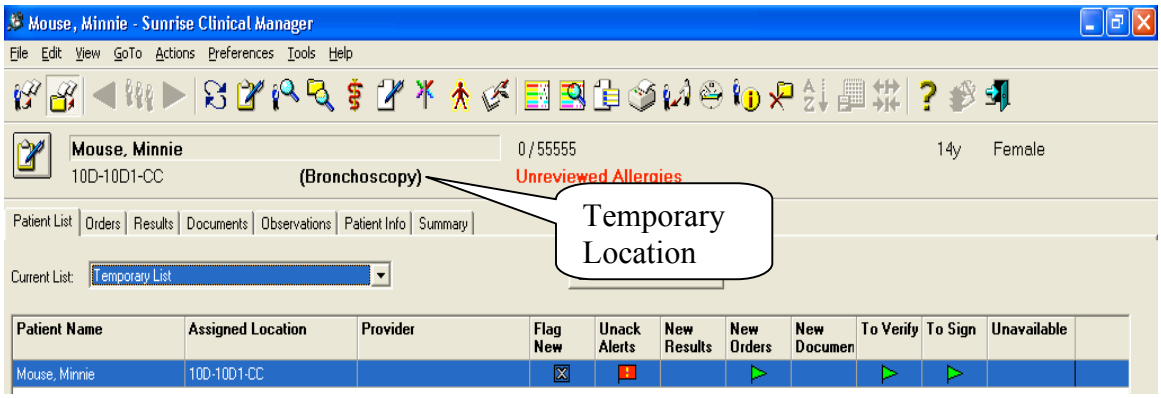
2. Select the appropriate temporary location from the Clinical Center list.



Screen 1.2: Temporary Location Selection window

3. Click Assign Temporary Location.

4. Click OK. The temporary location is then noted parenthetically in the header.



Screen 1.3: Patient List with Temporary Location displayed

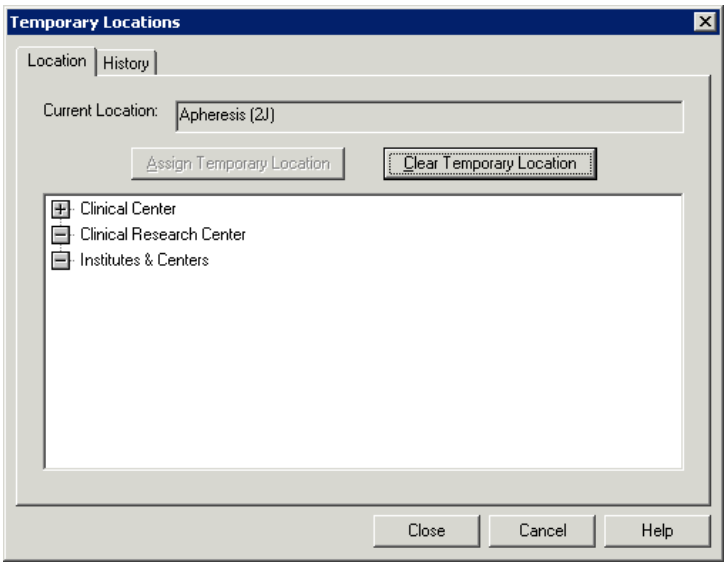
NOTE:

- Assigning patients to a temporary location does not affect their permanent registration location or visit type.
- Orders entered under the **Today Outpt/Current Inpt** session type while a patient is in a temporary location will print immediately at both a patient's permanent and temporary locations.
- Orders previously entered under the **Future Outpt/Pre-Admit** session type will print at both locations when the orders are released.
- Bar-coded lab labels will print at the patient's permanent location unless another location is selected for label printing within the lab orders. Bar-coded labels are generated by the lab system, not CRIS. The lab system is not notified of temporary locations assigned in CRIS.

To return a patient to his/her 'permanent' location

When the patient is ready to leave the temporary care area, the staff in that area should "clear" the temporary location using the following steps:

1. Click on the **Temporary Location** icon.
2. Click the **Clear Temporary Location** button.



Screen 1.4: Clear Temporary Locations Button

3. Click **OK**.

Order Session Types

Purpose: The purpose of order session types is to indicate when orders should be active. Active orders print and are transmitted via interface to other clinical systems as needed. An order's session type is decided by the prescriber or affiliate medical staff as part of the order entry worksheet at the time the order is entered.

Types: There are 3 order session types in CRIS:

- **Today Outpt/Current Inpt:** This is the default session type on the order entry worksheet. These orders are active immediately, print immediately, and are available only in the current inpatient visit or same day outpatient visit. Orders are closed either by resulting, by manually completing, by canceling at the end of a visit, or by auto-discontinuing after the close of a visit.

- **Future Outpt/Pre-Admit:** These orders are on "hold" when placed and become active and print when manually released in CRIS. Orders "holding" in this session type cross all visits until finally released during a particular visit; they are then associated only with that visit. They can be used for either future inpatient or outpatient visits. Once active, orders are closed by resulting, by manually completing, by canceling at the end of the visit, or by auto-discontinuing after the close of a visit.

- **Additional notes on Future Outpt/Pre-Admit**

  - Orders placed in this session type must always include a "reason" (e.g., 8/25 OP13 visit, 9/15 admission)
  - Orders will print at the date/time of release, not date/time of entry
  - Orders will print at patient's current registered ADT location at time of release, not at location at time of entry
  - Orders entered under this session type will undergo checking for duplication at the time of release, not at the time of order entry.
  - The scheduled date of orders can be changed prior to being released, if clinically appropriate (e.g., patient early/late for scheduled visit)

- **Take Home Medications:** These orders are active and print immediately, and are active across all visits (for purposes of refilling prescriptions) until closed by completion, manual canceling, or automated process based on CC policy. Take Home Medications include those prescribed in clinic for home use, in the hospital at the time of an inpatient discharge, and for use on pass. This session type must be used to transmit these orders to the outpatient pharmacy. Take home medications do not appear on the worklist manager.

Session types may be used in the various visit types as illustrated in the following chart:

Visit Type	Session Types		
	Today Outpt/Current Inpt	Future Outpt/Pre-Admit	Take Home Medications
Pre-NIH Registration	N/A	Allowed	N/A
Inpatient	Allowed	Allowed	Allowed
Outpatient	Allowed	Allowed	Allowed
Specimen	Allowed	N/A	N/A
OMS	Allowed	Allowed	N/A
Expiration	Allowed	N/A	N/A

Table 1.5: Visit Type with Order Session Type

Take Home Medications

Summary

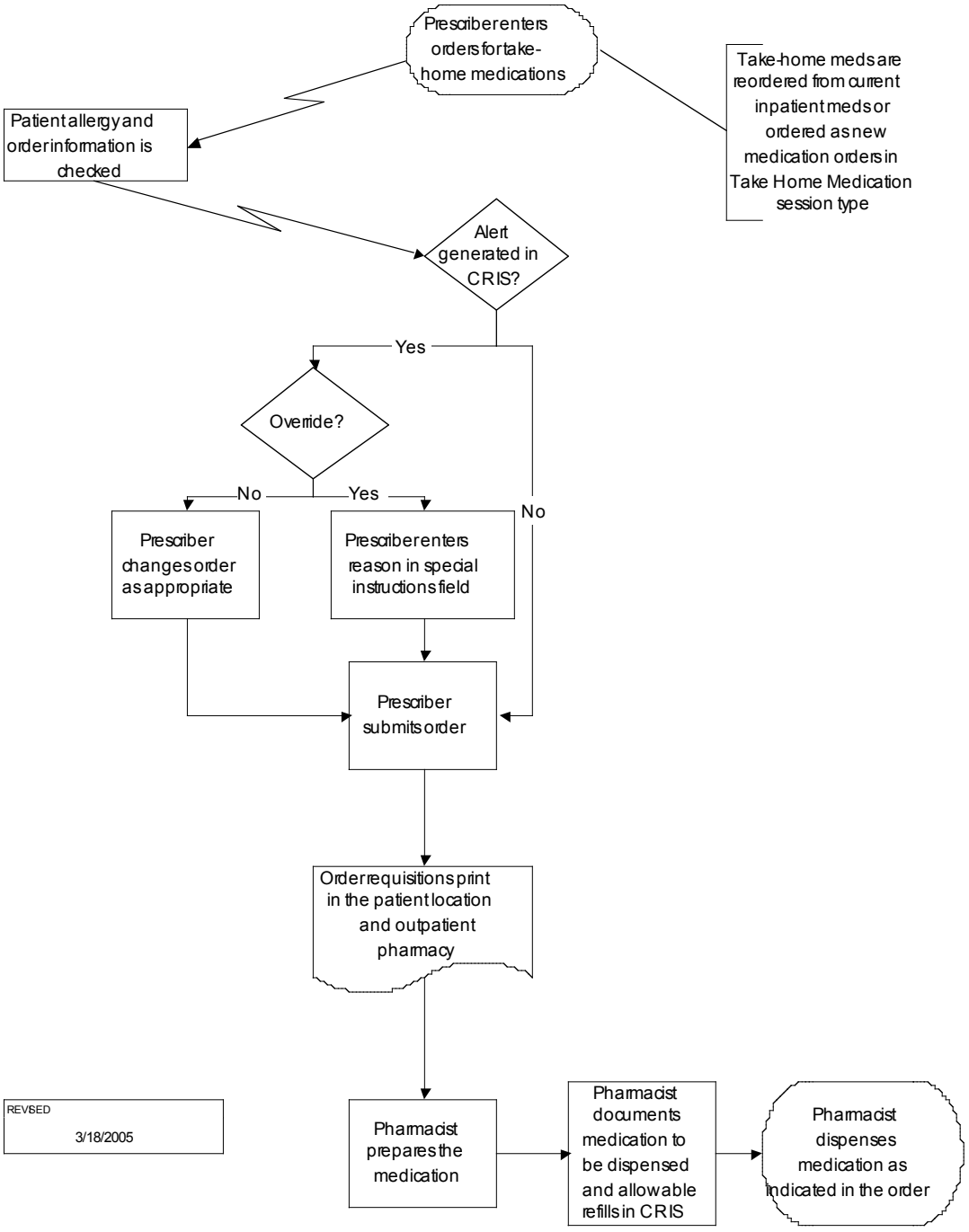
Prescribers order take-home medications in both inpatient and outpatient settings. All take-home medications, including discharge, pass, and clinic prescriptions, are ordered under a TAKE HOME MEDICATION session type in CRIS. This directs the orders to the Outpatient Pharmacy for dispensing to the patient. It also allows the order to remain active across subsequent inpatient and outpatient visits, thus facilitating refills by the Clinical Center pharmacy.

Prescribers can use the Reorder - Current function to order take-home medications from current inpatient medication orders; it is critical that the order session type be changed to TAKE HOME MEDICATION prior to submitting these new orders. Medications that are not already ordered for the inpatient are entered as new orders.

Notes:

- Prescribers should discontinue all take-home medications which they no longer want the patient to receive. The "active" take-home medications should reflect the patient's therapy currently provided by the Clinical Center outpatient pharmacy.
- Take-home medication orders placed through the copy/reorder function as duplicates of the inpatient medications, since both are active orders. Prescribers should override these alerts when submitting their orders. An alternative approach to avoid these alerts is to suspend all of a patient's take home medication orders at the time of an inpatient admission. These orders may then be unsuspended or discontinued as appropriate at the time of discharge.

CRIS Process Flow - Take-Home Medications



CRIS Process Flow – Take Home Medications Description

1. The Prescriber enters orders for take-home medications.

- Orders of current inpatient medications for take home are reordered under the TAKE HOME MEDICATION session type using the Reorder – Current function in CRIS.
- Orders of different medications for take home are placed as new orders in the TAKE HOME MEDICATION session type.

2. Order information is checked at the time of entry and allergy or drug-drug interaction alerts may be generated.
3. If an alert is generated, the prescriber can change the order based on the alert or override the alert, but must enter an override reason in the special instructions field.
4. The Prescriber submits the order(s).
5. The order requisitions print in the patient's current registered location and in the Outpatient Pharmacy.
6. The pharmacist prepares the prescription.
7. The pharmacist documents the prescription to be dispensed, including the amount (e.g., 1 month supply) and any allowable future refills.
8. The pharmacist dispenses the prescription as indicated in the order.

Specimen Collection

Summary

The Specimen Collection processes include the inpatient AM 'batched' blood collection, inpatient blood and non-blood collections, research specimens, outpatient clinic specimen collections, specimen collections in the Outpatient Phlebotomy department, add-on specimen tests, and mail-in specimen processes.

Blood and non-blood specimens are collected from NIH patients in outpatient clinics, the Outpatient Phlebotomy Department, day hospital units, inpatient units, diagnostic areas, operating rooms, and treatment areas. These specimens may be used for therapeutic and/or research purposes.

AM 'batched' blood draw - Inpatient

The primary blood specimen collection of the day occurs in the morning. Specimens for lab tests that are ordered as 'routine' prior to the scheduled collection date and/or blood specimens scheduled to be collected in the AM are 'merged' or 'batched' so that the collector (either a phlebotomist or RN) draws the minimum amount of blood required for all the ordered tests. The Charge Nurse on the unit determines which specimens are to be collected by the patient's nurse and which by a phlebotomist. This is the only inpatient collection process of the day in which phlebotomists routinely participate; individual

specimens drawn later in the day are collected by the patient's nurse or a phlebotomist contacted specifically for the draw. Not all inpatient units are served by phlebotomists.

Early each morning, Laboratory Information System (LIS) bar-coded labels for all AM draw specimens are printed on the patient's registered unit.

Specimens are labeled with LIS bar-coded labels at the point of collection and sent to the lab. No paper form is usually required to accompany the specimen because the LIS bar-coded label includes all necessary patient identification and test information. Some tests require that additional information be recorded on the specimen label of the order requisition. The list of these tests will be available in each patient care area.

If a nurse must collect and send specimens before the AM labels have printed on the unit, the specimens may be labeled with admission labels and sent with the printed order requisitions to the lab.

CRIS Process - AM (Batched) Blood Draw – Inpatients - Ordering Process

1. Order is placed in CRIS by prescriber or affiliate medical staff (AMS).
2. Session type is "Today Outpt/Current Inpt" by default, so no selection needs to be made for inpatients.
    a. The specimen collection location field is blank by default, indicating the specimen will be collected at the patient's registered location at the date/time requested. The prescriber should select another location from the drop down list if appropriate.
3. An Order Requisition prints immediately on the inpatient unit.
4. Charge RN/Clerk places the Order Requisition in a designated location.
5. Early each morning all blood draw orders due for collection cross to LIS (between 12am and 3am) and the specimen merge occurs.
6. Specimen Pick-up List (from LIS) will print in Central Accessioning area (~3am).
7. Nursing Unit Worksheet (a.k.a., unit census) will print on each inpatient unit (~3am) and will be placed in a designated area.
8. LIS bar-coded labels will print on each inpatient unit and will be placed in a designated area.
9. Charge RN indicates on Nursing Unit Worksheet which specimens are to be drawn by RN or phlebotomist.

Phlebotomist Collects Specimen

1. Phlebotomist arrives at the inpatient unit.

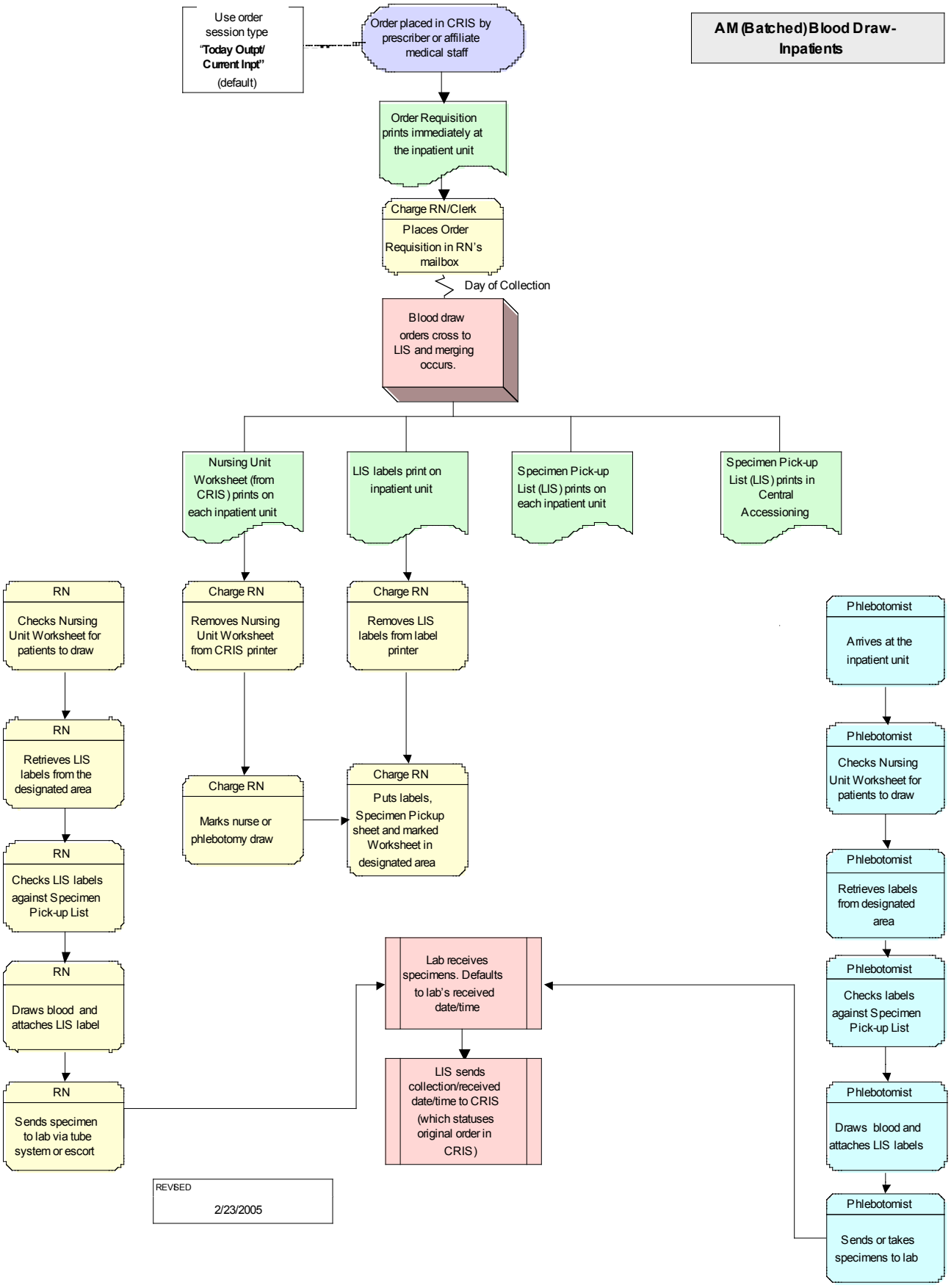
2. Phlebotomist locates labels and checks labels against the Specimen Pick-up List.
3. Phlebotomist checks the Nursing Unit Worksheet to determine which patients are phlebotomist draws.
4. Phlebotomist draws blood specimens for indicated patients.
5. Phlebotomist transports or sends specimens to the lab; research specimen tubes are given to nursing for appropriate distribution.
6. Lab receives the specimens and defaults the collection date and time in LIS to the received date and time.
7. LIS sends received date and time as collection time to CRIS, which statuses the original order in CRIS as "Specimen Received by Dept."

Nurse Collects Specimen

1. RN checks the Nursing Unit Worksheet to determine which patients are nurse draws.
2. RN retrieves the bar-coded labels or tubes from the designated area.
3. RN checks bar-coded labels or tubes against the Specimen Pick-up List.
4. RN draws blood specimens for indicated patients.
5. RN has specimens transported to the lab according to policy.
6. Lab receives the specimens and defaults the collection date and time in LIS to the received date and time.
7. LIS sends received date and time as collection time to CRIS, which statuses the original order in CRIS as "Specimen Received by Dept."

Notes:

- A review process exists on each unit to assure all ordered specimens were drawn and to discard leftover/unnecessary labels.
- Sometimes an additional test is ordered after the routine morning collection bar-coded labels are printed, but prior to the morning specimen collection. If this additional test can be collected in the same tube as one of the routine morning tests, the additional test label should be sent to the lab along with the routine morning specimen. The additional test will then be performed on the collected morning specimen to save the patient an additional draw.
- If a specimen is drawn before the labels have printed on the unit, the nurse will label the specimen with an admission label and send the specimen with a printed order requisition. If the requisition is unavailable for some reason, the CRIS order number may be written on the admission label.


AM (Batched) Blood Draw- Inpatients
Use order session type "Today Outpt/ Current Inpt" (default)
Order placed in CRIS by prescriber or affiliate medical staff
Order Requisition prints immediately at the inpatient unit
Charge RN/Clerk
Places Order Requisition in RN's mailbox
Day of Collection
Blood draw orders cross to LIS and merging occurs.
Nursing Unit Worksheet (from CRIS) prints on each inpatient unit
LIS labels print on inpatient unit
Specimen Pick-up List (LIS) prints in Central Accessioning
Specimen Pick-up List (LIS) prints on each inpatient unit
RN
Checks Nursing Unit Worksheet for patients to draw
Charge RN
Removes Nursing Unit Worksheet from CRIS printer
Charge RN
Removes LIS labels from label printer
Phlebotomist
Arrives at the inpatient unit
RN
Retrieves LIS labels from the designated area
Charge RN
Marks nurse or phlebotomy draw
Charge RN
Puts labels, Specimen Pickup sheet and marked Worksheet in designated area
Phlebotomist
Checks Nursing Unit Worksheet for patients to draw
RN
Checks LIS labels against Specimen Pick-up List
Phlebotomist
Retrieves labels from designated area
RN
Draws blood and attaches LIS label
Lab receives specimens. Defaults to lab's received date/time
Phlebotomist
Checks labels against Specimen Pick-up List
RN
Sends specimen to lab via tube system or escort
LIS sends collection/received date/time to CRIS (which statuses original order in CRIS)
Phlebotomist
Draws blood and attaches LIS labels
Phlebotomist
Sends or takes specimens to lab
REVISED
2/23/2005

Non-batched blood and non-blood collection - Inpatient

All non-blood specimens and blood specimens scheduled to be collected at times other than the standard AM draw are collected at the requested time. An Order Requisition form prints at the patient's registered location at the time the inpatient lab order is entered; this serves as a notification of a new order. All information from the order in CRIS is included on the Order Requisition.

Lab orders cross to LIS on the scheduled date of collection. On that date, LIS labels print at the patient's registered location, and are used to label the specimen at the point of collection. Specimens labeled with LIS bar-coded labels do not require a paper form (i.e., the Order Requisition) unless additional information from the collector is required. If additional information is required, it must be written on the printed Order Requisition form and/or the label and sent to the lab with the specimen. For certain specimens, only collection date/time is required, and can be written on the specimen label. (Please refer to the lab guide manual at the DLM website for further details.)

CRIS Process - Non-Batch Bloods and Non-Blood Specimens-Inpatient

1. Order is placed in CRIS by prescriber or affiliate medical staff (AMS).
2. Session type is "Today Outpt/Current Inpt" by default, so no selection needs to be made for inpatients.
   - The specimen collection location field is blank by default, indicating the specimen will be collected at the patient's registered location at the date/time requested. The prescriber should select another location from the drop down list if appropriate.
3. An Order Requisition prints immediately at the inpatient unit.
4. Charge RN/Clerk places Order Requisition in a designated location.
5. Order crosses to LIS on date due to be collected.
6. LIS bar-coded labels print on inpatient unit on day of collection.
7. Charge RN/Clerk takes LIS bar-coded labels from the label printer.
8. Charge RN/Clerk places LIS bar-coded labels in designated area.

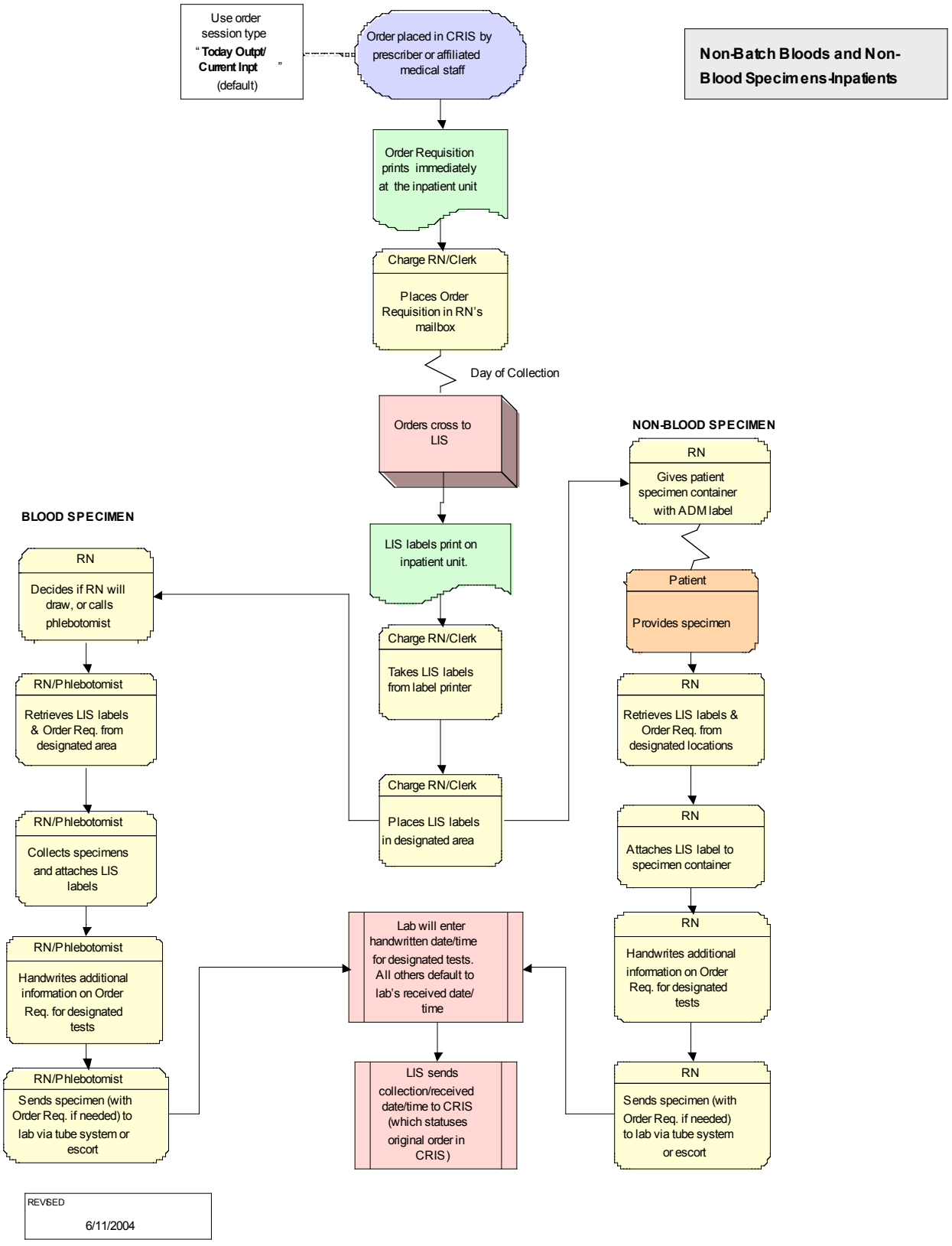
Blood Specimens

1. RN decides if RN will draw or calls phlebotomist.
2. RN/phlebotomist retrieves LIS bar-coded labels and Order Requisitions from designated area.
3. RN/phlebotomist collects specimens and attaches LIS bar-coded labels.
4. RN/phlebotomist handwrites additional information on Order Requisition and/or label for designated tests.
5. RN/phlebotomist sends specimens (with Order Requisition if needed) to lab via tube system or escort.

6. Lab will enter handwritten date/time as the collection time for timed tests in LIS; all other specimens default to lab's received date/time.
7. LIS sends collection date/time and received date/time back to CRIS which statuses the original order in CRIS as 'collected'.

Non-Blood Specimens

1. RN gives patient specimen container with Admissions label.
2. Patient provides specimen.
3. RN retrieves LIS bar-coded label and Order Requisition from designated area.
4. RN attaches LIS bar-coded label to specimen container.
5. RN handwrites additional information on Order Requisition and/or label for designated tests.
6. RN sends specimens (with Order Requisition if needed) to lab via tube system or escort.
7. Lab will enter handwritten date/time as the collection time for timed specimens in LIS; all other specimens default to lab's received date/time.
8. LIS sends received date/time back to CRIS, which statuses the original order in CRIS as 'collected'.


Use order session type "Today Outpt/ Current Inpt" (default)
Order placed in CRIS by prescriber or affiliated medical staff
Non-Batch Bloods and Non-Blood Specimens-Inpatients
Order Requisition prints immediately at the inpatient unit
Charge RN/Clerk
Places Order Requisition in RN's mailbox
Day of Collection
Orders cross to LIS
LIS labels print on inpatient unit.
Charge RN/Clerk
Takes LIS labels from label printer
Charge RN/Clerk
Places LIS labels in designated area
BLOOD SPECIMEN
RN
Decides if RN will draw, or calls phlebotomist
RN/Phlebotomist
Retrieves LIS labels & Order Req. from designated area
RN/Phlebotomist
Collects specimens and attaches LIS labels
RN/Phlebotomist
Handwrites additional information on Order Req. for designated tests
RN/Phlebotomist
Sends specimen (with Order Req. if needed) to lab via tube system or escort
NON-BLOOD SPECIMEN
RN
Gives patient specimen container with ADM label
Patient
Provides specimen
RN
Retrieves LIS labels & Order Req. from designated locations
RN
Attaches LIS label to specimen container
RN
Handwrites additional information on Order Req. for designated tests
RN
Sends specimen (with Order Req. if needed) to lab via tube system or escort
Lab will enter handwritten date/time for designated tests. All others default to lab's received date/ time
LIS sends collection/received date/time to CRIS (which statuses original order in CRIS)
REVISED
6/11/2004

Outpatient Lab Orders

Prior to CRIS, all outpatient laboratory orders to be drawn by outpatient phlebotomy were ordered on a paper form. If the specimens were to be collected on the same day, the patient took this form with him/her to Outpatient Phlebotomy. If the specimens were to be collected on a future date, the form was either given directly to the patient to bring back on the scheduled draw date, stored in the clinic by date, or forwarded to outpatient phlebotomy and stored by date. When the patient arrived on the designated date for specimen collections, the Outpatient Phlebotomist placed the order in MIS as an "agent for" the prescriber.

If the specimens were to be collected in clinic, the prescriber or clinic RN (as "agent for") entered the orders into MIS.

With CRIS, the paper order forms have been eliminated. All lab orders are entered in CRIS, either for "Today Outpt" when due to be collected on the same day, or else for a "Future Outpt" encounter; these orders will be released at the time the patient returns. If the date of the expected encounter changes, this information can be updated in these "Future" orders prior to their being released.

Per MEC policy, only prescribers or those authorized to act as "agents for" prescribers can enter lab or other orders in CRIS.

CRIS Process Flow – Outpatient Lab Orders - FUTURE OUTPT/PRE-ADMIT Orders

1. **Future Outpt/Pre-Admit** order is placed in CRIS by prescriber or AMS.
2. Prescriber or AMS may select the specimen collection location/LIS bar-coded label print location from a pull down menu.
   - If this area is left blank (the default value) the LIS bar-coded labels will print at the patient's current registered location at the time the order is released.
   - If order is released by OP Phlebotomy staff, the system will print LIS labels in Outpatient Phlebotomy Department regardless of location selected.
3. Order is submitted; process stops until the patient returns to the CC and the order is released. No order requisitions or labels print until the order is released.

CRIS Process Flow – Outpatient Lab Orders - TODAY OUTPT/CURRENT INPT Orders

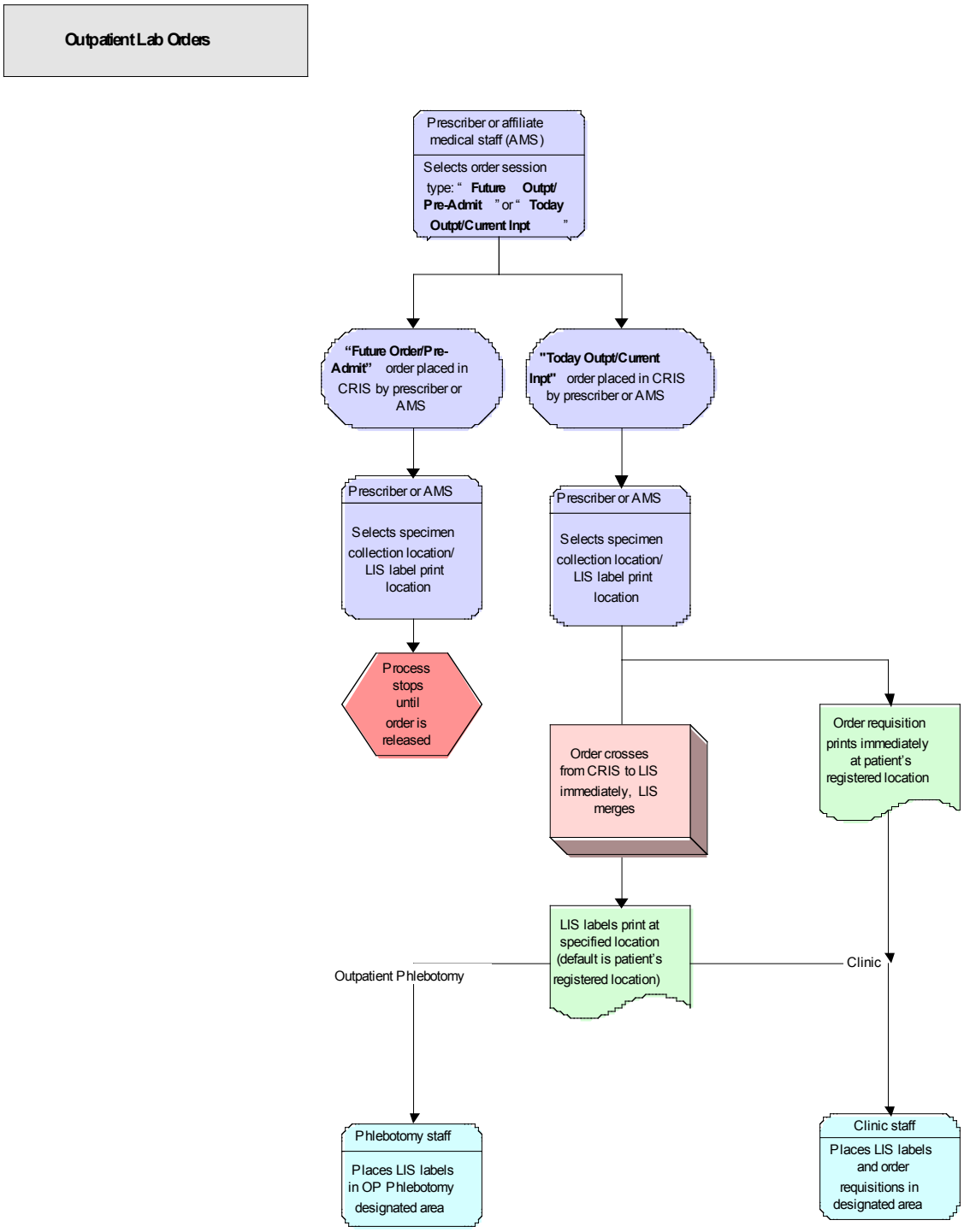
1. **Today Outpt/Current Inpt** order is placed in CRIS by prescriber or AMS.
2. Prescriber or AMS may select the specimen collection location/LIS bar-coded label print location from a pull down menu.
   - If this area is left blank (the default value) the LIS labels will print at the patient's current registered location, since the specimen is expected to be collected at this location.
3. Order is submitted; Order Requisition prints immediately at patient's current registered location.
4. Order crosses from CRIS to LIS.
5. LIS labels print at specified location (default is patient's registered location).

Specimen to be collected in Clinic

- If specimen is to be collected in the clinic, staff places Order Requisition(s) and LIS labels in location determined by clinic.

Specimen to be collected in Outpatient Phlebotomy

- Any special instructions are written on the order requisition and given to the patient in a recyclable envelope to carry to Outpatient Phlebotomy for specimen collection.
- If LIS bar-coded labels have inadvertently printed in the clinic, the clinic staff will place the labels with the requisition(s) in a recyclable envelope, and give the envelope to the patient.
- LIS bar-coded labels will print in Outpatient Phlebotomy if this location is selected as the specimen collection site in the lab order in CRIS.


Outpatient Lab Orders
Prescriber or affiliate medical staff (AMS)
Selects order session type: " Future Outpt/ Pre-Admit " or " Today Outpt/Current Inpt "
"Future Order/Pre-Admit" order placed in CRIS by prescriber or AMS
"Today Outpt/Current Inpt" order placed in CRIS by prescriber or AMS
Prescriber or AMS
Selects specimen collection location/ LIS label print location
Prescriber or AMS
Selects specimen collection location/ LIS label print location
Process stops until order is released
Order crosses from CRIS to LIS immediately, LIS merges
Order requisition prints immediately at patient's registered location
LIS labels print at specified location (default is patient's registered location)
Outpatient Phlebotomy
Clinic
Phlebotomy staff
Places LIS labels in OP Phlebotomy designated area
Clinic staff
Places LIS labels and order requisitions in designated area
REVISED
6/11/2004

Specimen Collection in Outpatient Clinic

CRIS Process - Specimen Collection Outpatient Clinic

1. RN checks CRIS for **Today Outpt/Current Inpt** and **Future Outpt/Pre-Admit** lab orders for patient.
   - To facilitate order retrieval, special filters will be used to display **Today Outpt/Current Inpt** and **Future Outpt/Pre-Admit** orders.
2. RN determines where the specimen is to be drawn: clinic or outpatient phlebotomy.

Specimen to be collected in Outpatient Phlebotomy

For **Today Outpt/Current Inpt** orders, the RN gathers order requisitions and labels (if printed in the clinic), places in recyclable envelope, and gives to patient to take to outpatient phlebotomy.

For **Future Outpt/Pre-Admit** orders that will be drawn in outpatient phlebotomy, the RN does not release the orders and sends patient to outpatient phlebotomy. Outpatient Phlebotomy will release the orders upon patient arrival.

Specimen to be collected in Outpatient Clinic

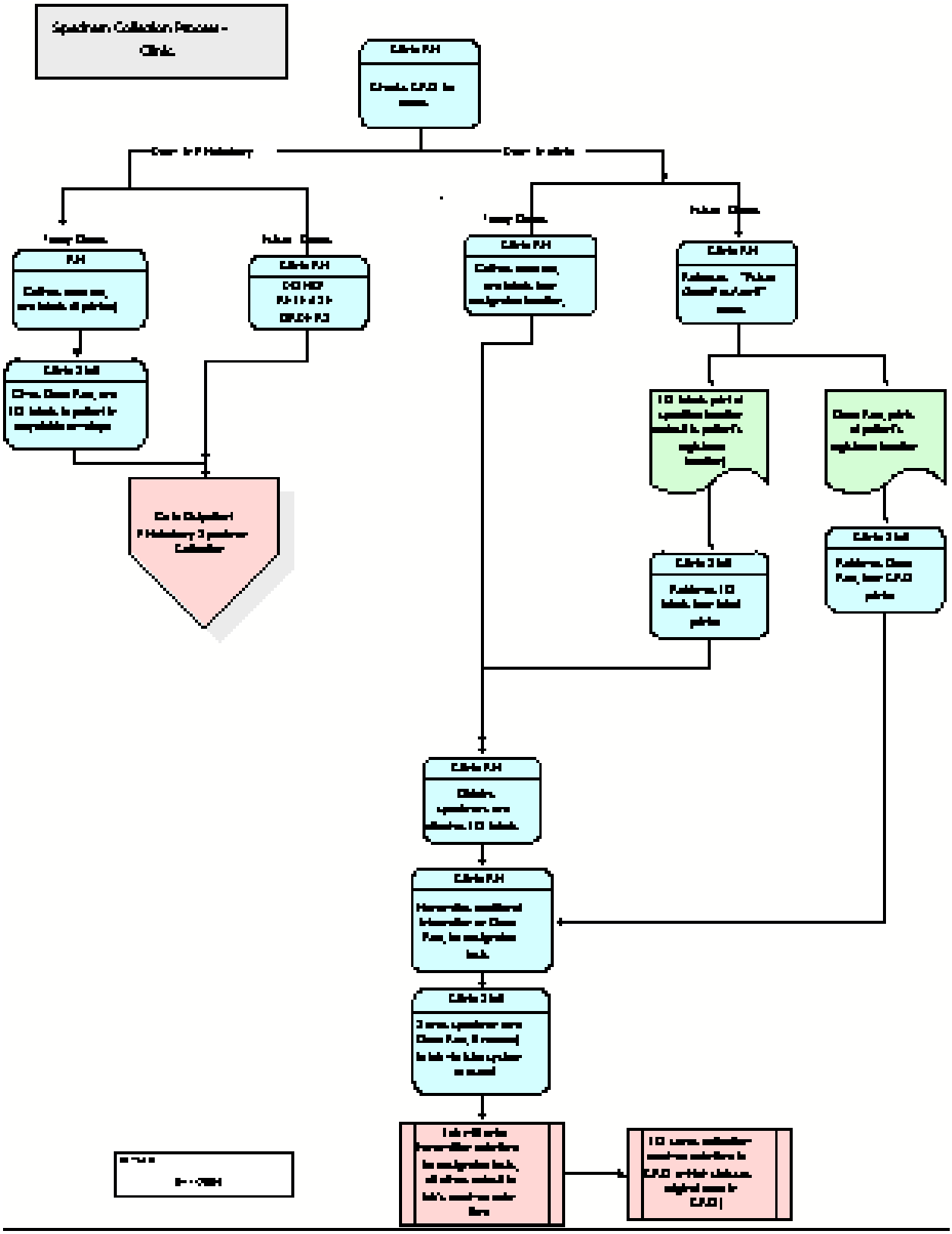
For **Today Outpt/Current Inpt** orders that will be drawn in clinic, the RN gathers the labels and begins collection process (see step 3).

For **Future Outpt/Pre-Admit** orders that will be drawn in clinic, the RN releases the orders.

a. LIS bar-coded labels will print in the location specified in the order (default is patient's registered location).
b. Order requisitions print at patient's registered location.
c. Clinic staff retrieves bar-coded labels and Order Requisitions from printers.
   - Note: If the clinic where the specimen to be collected is not the patient's registered location, and the label location drop-down field in the order does not identify the clinic as the print location, the order must be discontinued and reordered to obtain LIS labels.

3. Clinic RN obtains specimens and attaches LIS labels.
4. Clinic RN handwrites additional information on the label and/or Order Requisition for designated tests.
   - Note: RN handwrites the correct date on the LIS label when sending non-blood specimens that were collected on a date other than the preprinted date.
5. Lab will enter handwritten date/time for timed tests as the collection time. All others default to the date/time the lab received the specimens.

6. LIS sends received date and time to CRIS, which statuses the original order in CRIS as 'collected.'



Specimen Collection in Outpatient Phlebotomy

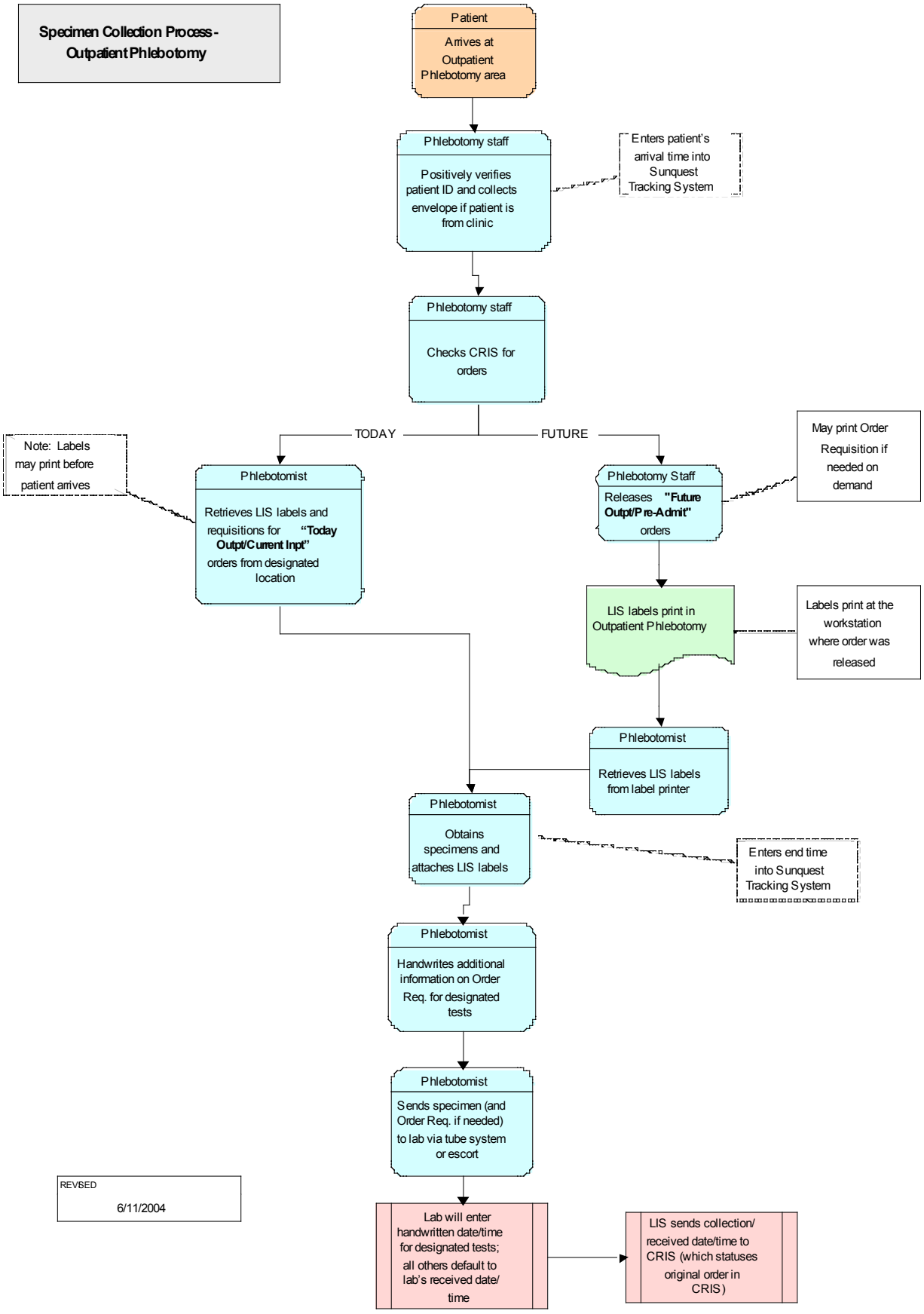
CRIS Process - Specimen Collection Process – Outpatient Phlebotomy

1. Patient arrives in OP Phlebotomy Department and gives name at desk.
   - If coming from the clinic, the patient hands the envelope containing order requisitions and LIS bar-coded labels (if any) to the OP Phlebotomy staff.
   - OP Phlebotomy staff place requisitions and LIS bar-coded labels (if any) received from patient in designated location.
2. OP phlebotomy staff positively verifies patient's ID.
3. OP phlebotomy staff checks CRIS for **Today Outpt/Current Inpt** and **Future Outpt/Pre-Admit** lab orders for patient. Labels for Today Outpt should have already printed at the dedicated bar-coded label printer in OP Phlebotomy.
   - To facilitate order retrieval, special filters are used to display **Future Outpt/Pre-Admit** and **Today Outpt/Current Inpt** orders.
   - There are 3 workstations for registering patients in OP Phlebotomy. Each has its own CRIS printer and LIS bar-code printer.
   - A dedicated bar-coded label printer generates labels for Today Outpt orders.

   For **Future Outpt/Pre-Admit** orders, the phlebotomy staff releases the orders.
   - LIS bar-coded labels print in OP Phlebotomy Department.
     - Must print order requisition for research and other designated tests.
     - Label and requisitions print at workstation where order was released.
   - Phlebotomist retrieves LIS labels.

   For **Today Outpt/Current Inpt** orders, phlebotomist retrieves order requisition(s) and the LIS bar-coded labels delivered by patient or from OP Phlebotomy designated bar-coded label printer.

4. Phlebotomist obtains specimens and attaches LIS labels.
5. Phlebotomist handwrites additional information on label and/or Order Requisition for designated tests.
6. Phlebotomist sends specimen (with Order Requisition if needed) to lab via tube system, moser, or escort.
7. Lab will enter handwritten date/time for designated timed tests as the collection time. All others default to the date/time the lab received the specimens.
8. LIS sends received date and time as collection time to CRIS, which statuses the original order in CRIS as 'collected.'


Specimen Collection Process - Outpatient Phlebotomy
Patient
Arrives at Outpatient Phlebotomy area
Phlebotomy staff
Positively verifies patient ID and collects envelope if patient is from clinic
Enters patient's arrival time into Sunquest Tracking System
Phlebotomy staff
Checks CRIS for orders
TODAY
FUTURE
Note: Labels may print before patient arrives
Phlebotomist
Retrieves LIS labels and requisitions for "Today Outpt/Current Inpt" orders from designated location
Phlebotomy Staff
Releases "Future Outpt/Pre-Admit" orders
May print Order Requisition if needed on demand
LIS labels print in Outpatient Phlebotomy
Labels print at the workstation where order was released
Phlebotomist
Retrieves LIS labels from label printer
Phlebotomist
Obtains specimens and attaches LIS labels
Enters end time into Sunquest Tracking System
Phlebotomist
Handwrites additional information on Order Req. for designated tests
Phlebotomist
Sends specimen (and Order Req. if needed) to lab via tube system or escort
REVISED
6/11/2004
Lab will enter handwritten date/time for designated tests; all others default to lab's received date/time
LIS sends collection/ received date/time to CRIS (which statuses original order in CRIS)

Add-on tests to specimens already in the lab

Additional tests on a specimen already received in the lab can be ordered in CRIS. This is accomplished by first calling to confirm specimen availability in the appropriate lab, then entering a new order in CRIS, indicating that the specimen is in the lab, and choosing a location for the test label to print. There are 6 possible lab locations: Lab – Chemistry, Lab – Hematology, Lab – Immunology, Lab – Microbiology, Lab - TTV, and Lab - HLA. The lab personnel retrieve the LIS labels from their local LIS label printer, add them to the specimen in the lab, and carry out the additional test(s).

CRIS Process Flow – Add-on Tests

1. The prescriber must always call the appropriate lab to make sure there is a specimen suitable for the add-on test. Lab personnel log all such calls.
2. The prescriber enters an order in CRIS for the add-on test.

    a. The prescriber indicates in the Special Instructions field that the "specimen is already in the lab" and any additional information that may be relevant.
    b. The prescriber chooses a location for the labels to print depending on the test ordered (Lab – Chemistry, Lab – Hematology, Lab – Immunology, Lab – Microbiology, Lab – TTV, or Lab – HLA). The lab personnel indicate during the preceding phone call which location to select.

3. Lab personnel retrieve the LIS labels from the printer and follow their local guidelines for labeling either a new tube or the previously received specimen.
4. Lab personnel carry out the additional test.

Notes:

- If the prescriber fails to select the correct label printing location in the CRIS order for the add-on test, the lab will not receive the necessary printed communication/label, and the add-on test will not be performed. The responsibility to select the correct lab location is the prescriber's; this is analogous to sending the MIS paper order requisition to the correct lab.
- If a suitable specimen is not available for the add-on test, a new CRIS order must be entered and a new specimen collected from the patient.

Non-NIH specimens and Non-patient specimens

The ancillary services handle many types of non-NIH patient specimens; these fall into three main categories:

- Referral specimens obtained from patients at outside facilities and sent to NIH for expert analysis. These patients may be asked to join active protocols at some point.
- Non-human specimens (e.g., animals) submitted from one NIH service area to another for testing.
- Human specimens where the identity should not be linked (e.g., blood donor specimens).
    - Non-human specimens that are submitted for testing are typically handled solely in the laboratory information systems (LIS), including SoftLab, SoftMic, and SoftPath. These specimens may be obtained from animals or solutions for possible infusion.
    - Orders for human specimens that should remain unlinked (e.g., blood donors) are entered exclusively in the LIS ancillary systems.

Referral Specimens: All orders and results on non-NIH patient specimens and non-patient specimens are handled solely by the laboratory information system (LIS).

- Some specimens are sent through a clinic while others are mailed directly to the testing area. Each testing service and referring protocol coordinator has a process for registering patient specimens and acquiring additional information necessary to process the specimens. In some cases, patient history is necessary to evaluate the specimen, while in other cases it is necessary to learn the identity of potential recipients when screening potential donors.
- In the event the patient is later enrolled in an NIH protocol, a full admissions process is performed using the ATV system. A new medical record number is assigned during this registration.
- Bone marrows referred to DLM Hematology (a.k.a., "K marrows") are handled by the laboratory information system.

Microbiology: Microbiology cultures performed on solutions submitted from pharmacy, epidemiology, and nuclear medicine are submitted to microbiology with a paper form instructing the laboratory which tests to perform. Microbiology techs enter the orders into LIS under fictitious patient names maintained solely in LIS. The unique identify of each specimen is entered as an order comment in LIS. Results may either be reported by the NIH mail service or transmitted by fax through LIS.

- Cultures and gram stains from Human Cell and Tissue Products produced in the Cell Processing Laboratory are ordered and resulted in LIS. Results are retrieved directly from LIS.

- Blood cultures on blood component bags implicated in a transfusion reaction are ordered in LIS rather than in CRIS. Final interpretation of positive culture results is documented in CRIS by DTM staff via the Patient Information tab under Significant Event, Transfusion History.
- Blood cultures on apheresis platelets are ordered in LIS rather than CRIS. Results reports are generated via LIS and distributed by the pneumatic tube system.

Hematology: Tests performed on animal specimens are submitted to the DLM hematology section with paper requisitions identifying specific tests to be performed. Hematology techs enter the corresponding orders into LIS and report results either by NIH mail or by fax through LIS. Animals are generally identified by the last name of the researcher and the first name of the animal species (e.g., Monkey). The unique identity of each specimen is specified in the LIS order comment.

Anatomic Pathology: CAP and other proficiency specimens are registered and tested in ancillary systems only.

NCI: Specimens submitted to microbiology for culture by NCI Surgery Branch on the LAK/TIL cells are performed, with tests ordered on one of two fictitious patients in CRIS: "Data, PBMC" or "Data, Component B." The "Data, PBMC" patient is used to order and result cultures on LAC or TIL cells that are intended for patient infusion. The "Data, Component" patient is used to order and result cultures on reagent grade materials not intended for patient infusion. The individual unique identifier for each specimen is entered as an order comment. Results from "Data, PBMC" are called, while results from "Data, Component" are sent through NIH mail.

Blood Component Preparation and Infusion Orders

In order for blood to be infused two separate orders are required:

- A transfusion service order for the preparation of the blood component
- A nursing service order to actually infuse the prepared component
    - An intermediate step is a request from the nursing service to the transfusion service to release the blood component to the Messenger and Escort service, which picks up the pre-ordered blood component and delivers it to the nursing unit for infusion. This is accomplished using the Blood Pick-up service request. The service requisition is manually completed by the transfusion service staff after the blood is released.
    - A second delivery process exists for pre-ordered blood needed in the operating room for surgical procedures.

To prepare a red cell-containing component for infusion it is necessary to order a patient ABO type and screen for irregular antibodies and a crossmatch test to determine compatibility between the patient and the donor units. For plasma components such as Fresh Frozen Plasma and Cryoprecipitate it is desirable to have a patient ABO type on record to match the component type whenever possible.

- Orders for the preparation of blood components (e.g., Type/Screen and Crossmatch) are initiated in CRIS and cross to the blood bank information system.
- Both pre-transfusion testing and the record of blood release to nursing are documented in the blood bank information system.
- Instructions for special processing of blood (blood component modifiers) are placed in CRIS indicating blood is to be irradiated, leukoreduced or washed as applicable.
- The blood product orders in CRIS will display different statuses depending on the stage of processing or activity.
- Nurses document blood infusion in CRIS.
- The specimen for ABO typing and antibody screening is used to perform pre-transfusion testing until midnight of the third day after collection. A message is placed on the Type and Screen order form informing the Prescriber that if the "Repeat" selection is chosen, the specified frequency selected is "Daily every 4 days". In addition, the duplicate checking feature is set to check for duplicate orders 72 hours prior to and after the new order.

Pre-Operative and Intra-Operative Blood Orders

- A **Maximum Surgical Blood Order Schedule** (MSBOS) exists in CRIS as an order set. Prescribers order blood by selecting the scheduled surgical procedure from the order set. This generates an order for a pre-determined number of red blood cells or for a Type and Screen depending on the requirements of the selected procedure.
- An abbreviated blood infusion documentation flow sheet is provided in CRIS to allow for the rapid documentation of blood infused during surgery.
- The OR float nurse places intra-operative blood orders "as an agent for" the Prescriber. These orders should be countersigned within 72 hours by the Prescriber per MEC policy. In the event that orders need to be placed by the medical technologists, the same process flow of placing the order "as an agent for" the requesting Prescriber is followed.

Transfusion Reactions

Adverse reactions to transfusion are rare but may be life threatening. This requires a mechanism for the immediate recognition and reporting of adverse events related to blood transfusion to the transfusion service, which initiates an evaluation and final classification of the adverse event. The transfusion service performs an evaluation of the reaction based on the results of laboratory testing, record review, and inspection of blood component bags. DTM may suggest modifications to future blood components or pre-medication to avoid future adverse reactions to blood transfusions.

- When a reaction to a blood component infusion is suspected, the nurse documents the symptoms in the blood administration flow sheet in CRIS. In addition, a laboratory order is placed for the evaluation of the reaction. This occurs by selecting one of two order sets, "Transfusion Reaction RBC/WBC" or "Transfusion Reaction PLTS/Plasma." The order sets gather necessary information for the laboratory to perform its evaluation and also generate orders for specific tests. Depending on the type of component associated with the reaction, the nurse may be instructed to send post transfusion blood and urine specimens (RBC/WBC).
- Nursing staff document adverse reactions to transfusion in the blood component administration documentation and send blood bags and all attached solutions to DTM for evaluation.
- The technologist performs testing and documents test results which appear in CRIS.
- Once the DTM fellow reviews the results of initial testing, s/he may place orders for additional tests in CRIS as appropriate.
- Once the workup is completed, a summary is documented in the Transfusion Reaction Investigation Note by a transfusion service supervisor.
- The final classification is added to the Patient Information Tab as a Significant Event, type Transfusion History. This ensures that the history of adverse reactions to transfusion is prominently displayed across patient stays.

Consults

Clinical consultation is a frequent and often critical component of patient care at the Clinical Center. Consults are performed by staff from many of the institutes and centers, as well as several outside healthcare providers and organizations in the area. The Clinical Center Consult Review Committee performs monitoring of the quality and efficiency of formal clinical consults.

All requests for clinical consults provided by the institutes should be preceded by a telephone call directly to the consult service before actual order entry into CRIS.

Formal clinical consults may be documented using one of several mechanisms:

- Dictations, electronic distribution, review and signature using the ESA system provided by the Medical Record Department. The completed and signed consult report will be is found in the Results section of CRIS. The original consult order is automatically completed when the completed consult report is entered into CRIS.
- Handwritten on the hardcopy Consult Report Form that is available on the various nursing units and in the clinics. The completed and signed consult report is filed into the Consult Section of the patient's hardcopy medical record but is not entered into CRIS. The consultant must manually complete the original consult order in CRIS.

Process points to note

- Consults may be dictated or handwritten. Dictation is preferred by the Clinical Center.
- Electronic distribution, editing and signature of consults continue to take place as a part of the transcription process in the ESA system.
- Consultants who either handwrite or directly enter their consults in clinical documentation in CRIS must manually complete the original consult order in CRIS.

Isolation

Summary

The isolation process is implemented when a patient is determined or suspected to be infected with a pathogen identified by the Epidemiology Service as requiring isolation. Confirmation of infection is through positive microbiology or other appropriate test results. Suspicion of infection can arise during the performance of a patient history or physical assessment. The isolation order may be for one or more of six isolation types: acid fast bacilli (AFB), central nervous system (CNS) precautions, contact, respiratory, special respiratory, or strict. The type of isolation precautions implemented depends on the specific pathogen involved.

The isolation order is a service requisition entered by a prescriber or Epidemiology Service staff member or a nurse as an "agent for". Even though the order completes after the close of a visit, staff members can view Isolation Status across visits as part of the Significant Events in the patient record in CRIS. The Epidemiology Service is responsible for maintaining the Isolation Status in Significant Events. A nurse uses the hospital services website to request an isolation cart be sent to the unit.

Discontinuation of isolation requires 2 steps:

1. Updating the Isolation Status in Significant Events in the patient record by the Epidemiology Service (nursing may also update)
2. Discontinuing the order.

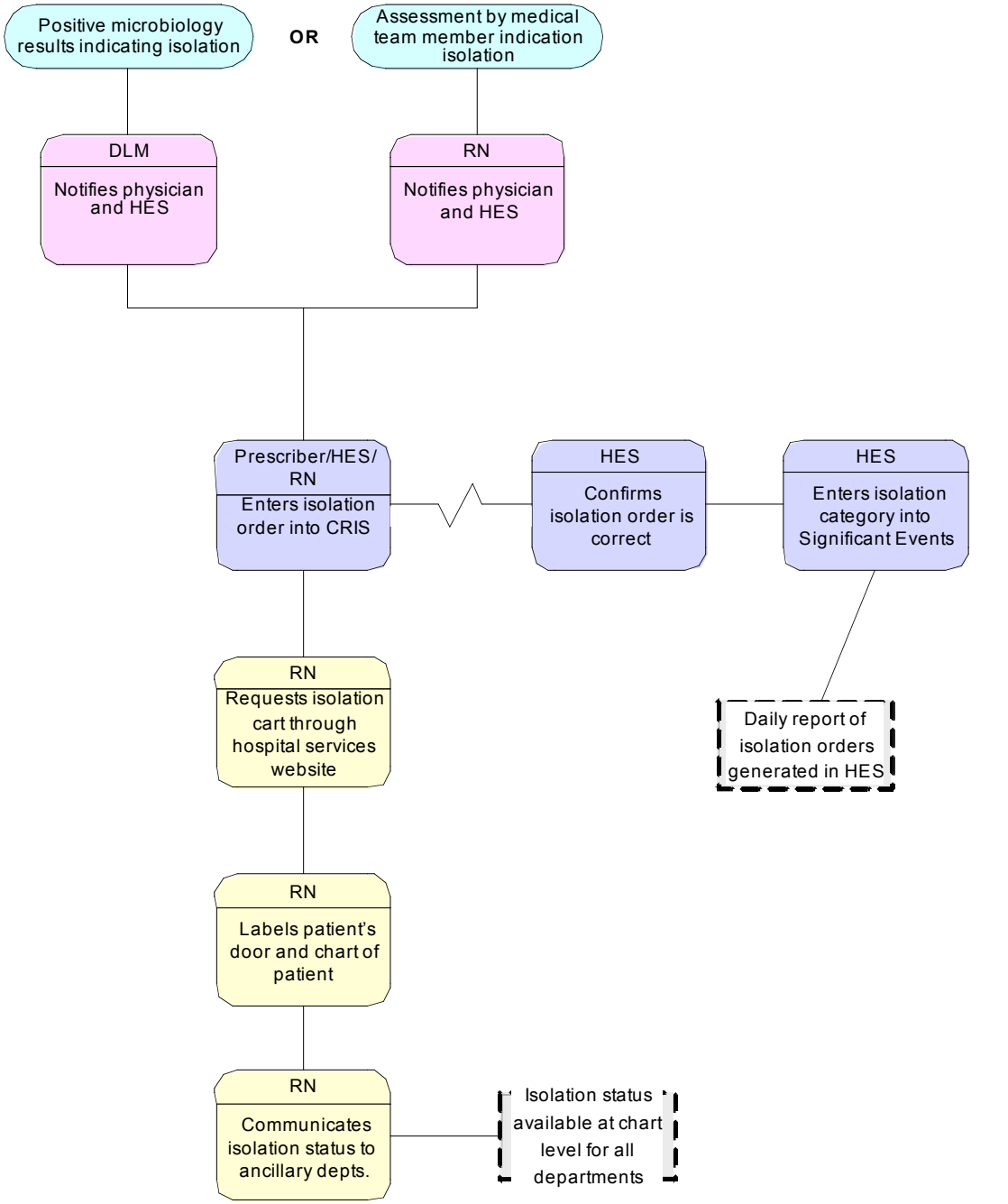
Notes:

- It is important for nurses and other staff to review the Significant Events section of the patient record for a current isolation status. The Isolation Status under Significant Events remains across visits.
- Nurses should review Significant Events as part of the initial admission assessment to determine whether the patient required isolation at the time of their last discharge.

CRIS Process Flow – Initiating Isolation

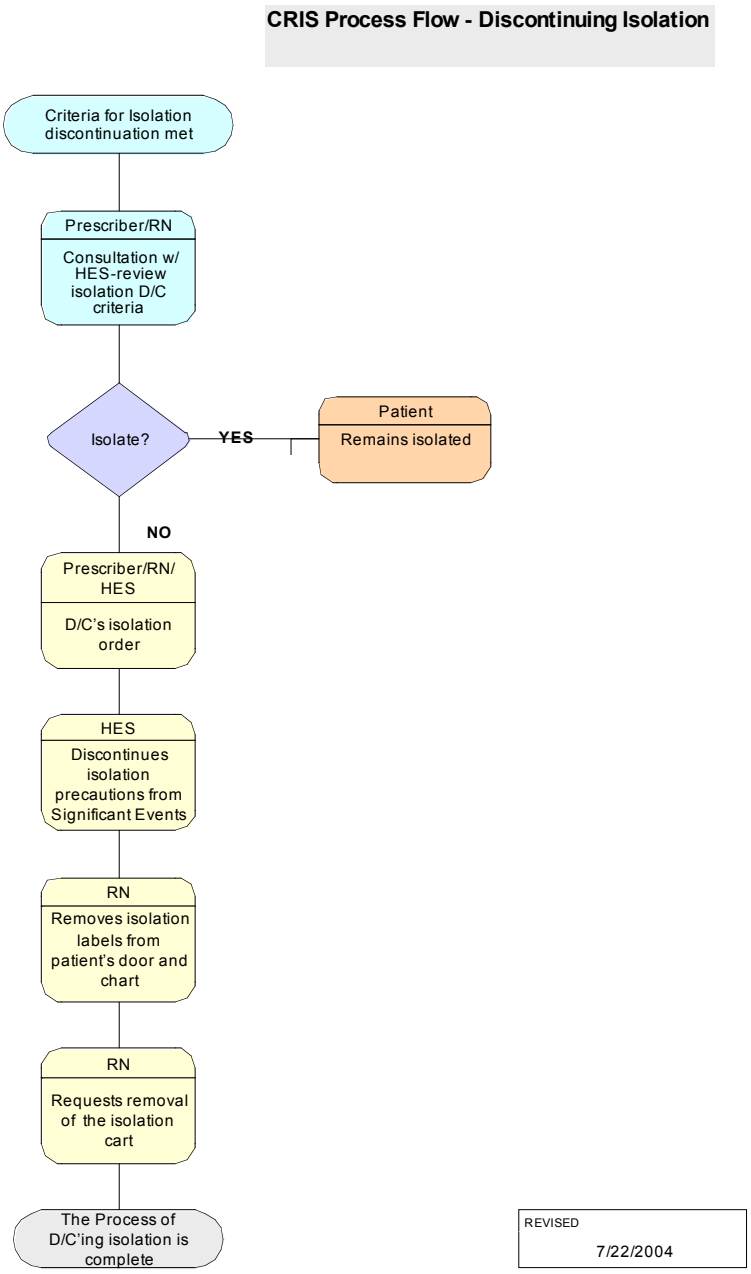
1. Positive microbiology results confirm or an assessment by a medical team member suggests that isolation is indicated.
2. The attending physician and the Epidemiology Service are notified.
    a. The lab communicates positive microbiology or other test results.
    b. The medical team member communicates suspected infection.
3. The Prescriber enters the order for isolation. The nurse or Epidemiology Service staff may enter the order as an "agent for" the Prescriber. An Epidemiology Service staff member must review all orders for isolation.
4. If the patient is isolated on suspicion, the Prescriber orders appropriate cultures.
5. An Epidemiology Service staff member reviews and confirms the order for isolation.
6. An Epidemiology Service staff member enters the isolation status in Significant Events in the patient record in CRIS.
7. The nurse sends for an isolation cart using the Hospital Services website.
8. The nurse labels the patient's door and chart with appropriate isolation communication.
9. The nurse communicates the isolation status to ancillary departments as needed. Isolation status will be available at the chart level in CRIS for any department to view.

CRIS Process Flow - Initiating Isolation



CRIS Process Flow - Discontinuing Isolation

1. When the criteria to discontinue isolation are met, a consultation with the Epidemiology Service is arranged by phone.
2. If it is determined that isolation should be discontinued, the order is discontinued by the Prescriber, an Epidemiology Service staff member, or the nurse in CRIS.
3. An Epidemiology Service staff member discontinues the isolation precautions in Significant Events.
4. The nurse removes the signs from the door and chart.
5. The nurse requests removal of the isolation cart using a service requisition.



Admission/Travel/Voucher Request System (ATV) (Form 54 Replacement)

A web-based application called the Admission/Travel/Voucher Request System (ATV) handles many tasks that used to be handled by the MIS Form 54. Use the ATV system to enter requests for:

- inpatient admissions
- outpatient registrations
- travel requests for government sponsored travel for patients (not employees)
- travel vouchers for travel reimbursement requests
- lodging vouchers (including hotels, The Children's Inn and Safra Family Lodge)
- meal vouchers

ATV Access information

This secure system is web-based and only authorized users will have access. If you need access to be able to enter patients' admission, voucher, and travel requests, please contact the Ambulatory Care Service Office of the Chief, 301-496-2341.

Tips for Users

- The screens read across from left to right
- A red asterisk (*) denotes mandatory information. The more data fields completed on the search screen, the fewer number of records that will match the criteria
- On the *Pending Request List Search* screen, the status and request type data fields can be used to verify that all requests have been processed or to check the status of a specific request
- Use the ATV confirmation number to search for a specific request
- Create your own reference sheet for the branch name and protocols under that branch by printing them out (use the print icon on the menu bar)

The application has a help tab with step-by-step instructions for submitting each request.

Miscellaneous Information

Basic Windows Skills

Windows skills are necessary to use CRIS. If end-users need Windows training, there is a Windows Skills CBT available. You can link to it from the CRIS Home Page (http://cris.cc.nih.gov/public).

Nursing Care Plans

There are no nursing care plans in CRIS. There is a paper tool for interdisciplinary documentation used on the units.

Date and Time Displays

CRIS uses a 24-hour clock.

- Twenty four hours is defined as starting at 00:00 and ended at 23:59
- Midnight is defined as 00:00 in the CRIS system.
- CRIS displays dates as Month/Day/Year (07/31/04)

Volunteer Voucher Form

All payments will be processed through the Clinical Center Hospital Services System (http://supply.cc.nih.gov) using your Clinical Center login.

To enter a new Volunteer Payment Request,

- Login to the Hospital Service application (http://supply.cc.nih.gov).
- In the menu on the left, select (or click on) "New Request" under Volunteer Payment Request (near the bottom).
- You will be prompted for the patient's medical record number. Enter it and select "Search".
- The next screen requires you to check the box next to the patient's name to confirm the correct patient; do so and select "Continue".
- On the next three screens, just fill in the requested information and select "Continue" at the bottom.
- On the last screen review the information you've entered and either select "Modify" to make corrections, or "Submit" to forward the request to the Volunteer Office for payment.

Please be aware that you must have a correct SS# (or EIN#) and CAN # to request a payment. If a volunteer is foreign born without a SS#, then contact the healthy volunteer office at 301-496-4763 to request an EIN number The EIN number will be emailed to the requester within 2 business days and the requester will then enter a payment request. The healthy volunteer office will not

be able to correct or add information to your request for payment. All updates will have to be entered by the requester.

- If you have any problems with the forms or need more information on submitting a request, call 301-496-4763
- If you have any difficulties connecting or logging in, call 301-496-7436